DEFENSE LOGISTICS AGENCY
DEFENSE SUPPLY CENTER, COLUMBUS
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COLUMBUS, OHIO 43216-5000

IN REPLY
REFER DSCC-VAI (Mr. Ron Gary/(614) 692-0568 November 5, 2003

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: Initial Draft of MIL-DTL-83517/1A through 11A; Connectors, Coaxial, Radio Frequency for Coaxial, Strip and Microstrip Transmission Lines; Project Numbers 5935-4608-001 through -011.

The initial drafts for the subject documents are now available for viewing and downloading from the DSCC-VAI Web site:

http://www.dscc.dla.mil/Programs/MilSpec/initialdrafts.asp

Changes to these documents include the incorporation of the EIA 364 test procedures and various reference specification updates. Special attention should be given to the new VSWR test procedure recommendation. However, all of the specifications are offered for review and comment in their entirety.

Concurrence or comments are required at this Center within 45 days from the date of this letter. Late comments will be held for the next coordination of this document. Comments from Military Departments must be identified as either “Essential” or “Suggested”. Essential comments must be justified with supporting data. Military review activities should forward comments to their custodians, as applicable, in sufficient time to allow for consolidation of the Department reply.

Please forward your comments or concurrence electronically to the project officer listed below. This can be in the form of a return e-mail, with or without attached text files. If an electronic response is not possible, we will accept comments via letter, facsimilie, or phone call. Any further coordination concerning this document will be circulated only to firms and organizations that furnish comments or reply that they have an interest.

The point of contact for this document is Mr. Ron Gary. The preferred method of contact is via e-mail: Estel.Gary@dla.mil. Mr. Gary can also be reached at 614-692-0568/DSN 850-0568, or by facsimilie 614-692-6940.

Sincerely,

/signed/

RICHARD L. TAYLOR
Chief,
Interconnection Devices Team

RECOMMENDED TEST PROCEDURE
(This test will be placed in the General specification once it has been approved during this coordination)

VSWR Procedure

The VSWR shall be measured in accordance with the following procedure or a method acceptable to the Government.

Part should be tested using a Network Analyzer with the Time Domain (TDR) option installed. This is essential to allow the effect of the adapters to be “gated” out. The recommended network analyzer systems include Hewlett Packard HP 8510, Wiltron 360 or equivalent. The printer/plotter and the computer should be any unit compatible to the system.

Calibration of the system should be performed using the manufacturer’s calibration kits and the recommended calibration procedures. The frequency range shall be as specified (see 3.1). The VSWR calibration test setup shall be verified using the manufacturer’s verification kits. The calibrated system VSWR shall be less than 1.02 + .001F (F in GHZ).

The VSWR of the DUT shall be measured using the procedures described in the manufacturer’s operating instructions. The time domain shall then be used to remove the effects of the test adapter. The output shall be generated using the appropriate printer/plotter.

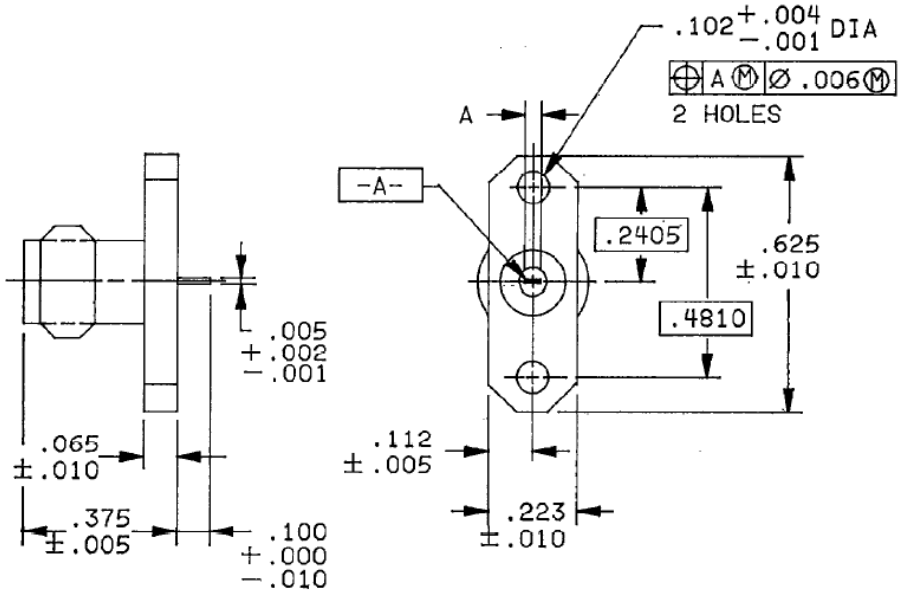
MIL-DTL-83517/1A
DRAFT
SUPERSEDING
MIL-C-83517/1
20 September 1982

DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLE, ELECTRICAL, COAXIAL, RADIO FREQUENCY, STRIP OR MICROSTRIP TRANSMISSION LINE, SERIES SMA (SOCKET CONTACT, FLANGE MOUNTED TAB TERMINAL RECEPTACLE)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the connectors described herein shall consist of this specification and the latest issue of MIL-DTL-83517A.

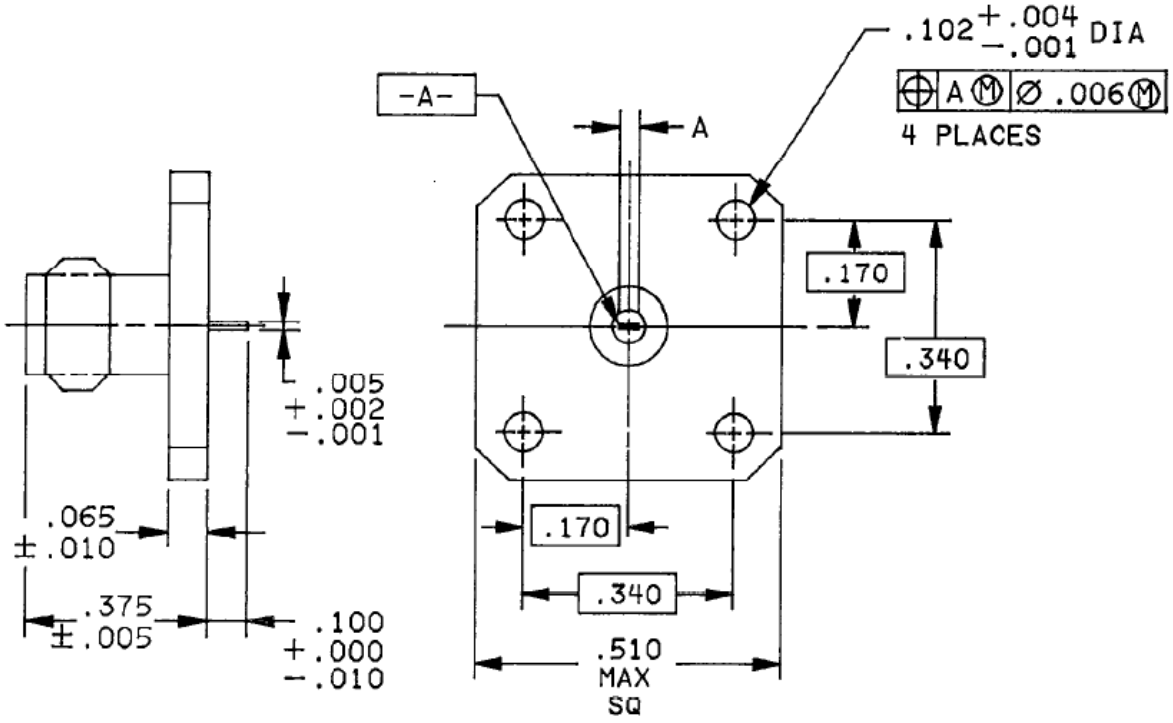


PART NO.	"A" DIM
-31001	.020 ± .002
-31002	.050 ± .001

INCHES	MM	INCHES	MM
.001	.03	.065	1.65
.002	.05	.100	2.54
.004	.10	.102	2.59
.005	.13	.112	2.84
.006	.15	.223	5.66
.010	.25	.2405	6.11
.020	.51	.375	9.53
.050	1.27	.4810	12.22
		.625	15.88

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

FIGURE 1. Series SMA, socket contact (2 hole) flange mounted receptacle.



PART NO.	"A" DIM
-31003	.020 ± .002
-31004	.050 ± .001

INCHES	MM	INCHES	MM
.001	.03	.050	1.27
.002	.05	.065	1.65
.004	.10	.100	2.54
.005	.13	.170	2.59
.006	.15	.340	4.32
.010	.25	.375	8.64
.020	.51	.375	9.53
		.510	12.95

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

FIGURE 2. Series SMA (four hole) flange mounted receptacle.

Nominal impedance: 50 ohms.

Voltage rating: 335 Vrms maximum at sea level.
150 Vrms maximum at 70,000 feet.

Frequency range: 0 to 18.0 GHz.

Temperature rating: -65°C to 105°C.

REQUIREMENTS:

Design and construction: See figures 1 and 2; table I and MIL-STD-348.

Force to engage and disengage:

Torque – 2 inch-pounds maximum.

Longitudinal force – Not applicable.

Coupling proof torque: Not applicable.

Inspection note: For each test of threaded coupling connector where the test is performed on mated pairs, the pairs shall be torqued to 7 to 10 inch-pounds.

Contact gaging: See figure 4.

Contacts with spring members:

Center contact (socket)

Oversize test pin - .0375 +.0001

Test pin finish – 16 microinches.

Insertion depth - .030/.045.

Number of insertions – 3.

Insertion force test: Steel test pin diameter .0370 + .0001.

Insertion depth - .050/.075.

Test pin finish – 16 microinches.

Insertion force – 3 pounds maximum.

Withdrawal force test: Steel test pin diameter .0355 - .0001

Insertion depth - .050/.075.

Withdrawal force – 1 ounce minimum.

Test pin finish – 16 microinches.

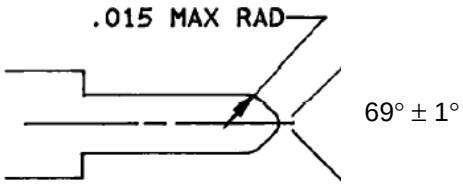


FIGURE 3. Test pin data.

TABLE I. Part number and characteristics.

Part no. M83517/1-	Connector figure no.	Characteristics
31001	1	2 hole flange mount. .020 wide tab.
31002	1	2 hole flange mount. .050 wide tab.
31003	2	4 hole flange mount. .020 wide tab.
31004	2	4 hole flange mount. .050 wide tab.
32001	1	2 hole flange mount. .020 wide tab.
32002	1	2 hole flange mount. .050 wide tab.
32003	2	4 hole flange mount. .020 wide tab.
32004	2	4 hole flange mount. .050 wide tab.

Permeability of nonmagnetic materials: Applicable.

Seal:

Hermetic sealed connectors: Not applicable.

Pressurized and weatherproof connectors: Not applicable.

Insulation resistance: 5,000 megohms minimum. Test method 021B of EIA 364.

Center contact retention:

Axial force: 6 pounds minimum.

Torque: 4 inch-pounds minimum.

Dielectric withstanding voltage: Method 020B of EIA 364 condition I.

Test voltage 1,000 Vrms.

Corrosion: Test method 026A of EIA 364 test condition B.

Voltage standing wave ratio (VSWR):

1.35 +.01 F (F in GHz), maximum. Test frequency range: From .5 to 18.0 GHz.

RF transmission loss: $.07\sqrt{F}$ (tested from 2-18 GHz, F in GHz).

RF leakage: Not applicable.

Connector durability:

Interface:

500 cycles minimum at 12 cycles/minute maximum rate.

Connector shall meet contact gaging and force to engage and disengage requirements.

Contact resistance: In milliohms maximum.

	Initial	After environment
Center contact:	3.0	4.0
Outer contact:	2.0	Not applicable

Thermal shock: Applicable, test condition A.

Moisture resistance: Method 106 of MIL-STD-202.

No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

RF high potential withstanding voltage:

At a frequency between t to 7.5 MHz.

Leakage current – Not applicable.

RF voltage – 670 Vrms.

Coupling mechanism retention force: Not applicable.

Part number: M83517/1-(dash number from table I.)

Group qualification: See table II.

TABLE II. Group qualification.

Group	Submission and qualification of any of the following connectors 1/2/	Qualifies the following connectors
1	3+001	3+001 3+002 3+003 3+004

1/ Individual connectors other than listed are self qualifying only.
2/ Qualification of connectors qualifies connectors of the same material only.
+ Denotes finish.

Specifications cited herein:

MIL-STD-202
MIL-STD-348
EIA 364

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA - CC

Preparing activity:
DLA – CC

(Project 5935-4608-001)

Review activities:
Army – AR, AT, CR4, MI
Navy – AS, MC, OS, SH
Air Force – 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.

Note: This draft dated 31 October 2003, prepared by the Defense Supply Center Columbus (DSCC-VAI) has not been approved and is subject to modification.
DO NOT USE FOR ACQUISITION PURPOSES

MIL-DTL-83517/2A
DRAFT
SUPERSEDED
MIL-C-83517/2
20 September 1982

DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLE, ELECTRICAL, COAXIAL, RADIO FREQUENCY, STRIP OR MICROSTRIP TRANSMISSION LINE, SERIES SMA (PIN CONTACT, FLANGE MOUNTED TAB TERMINAL RECEPTACLE)

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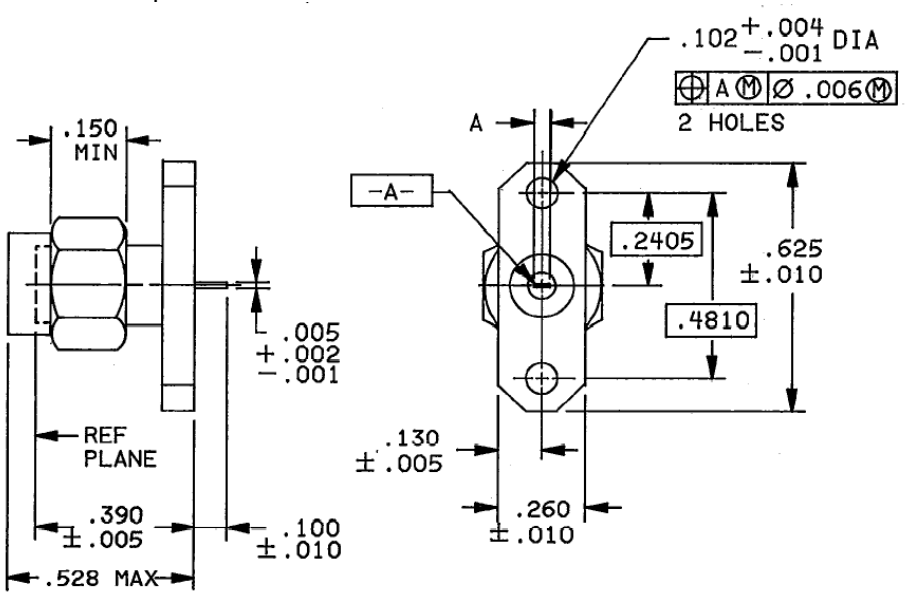
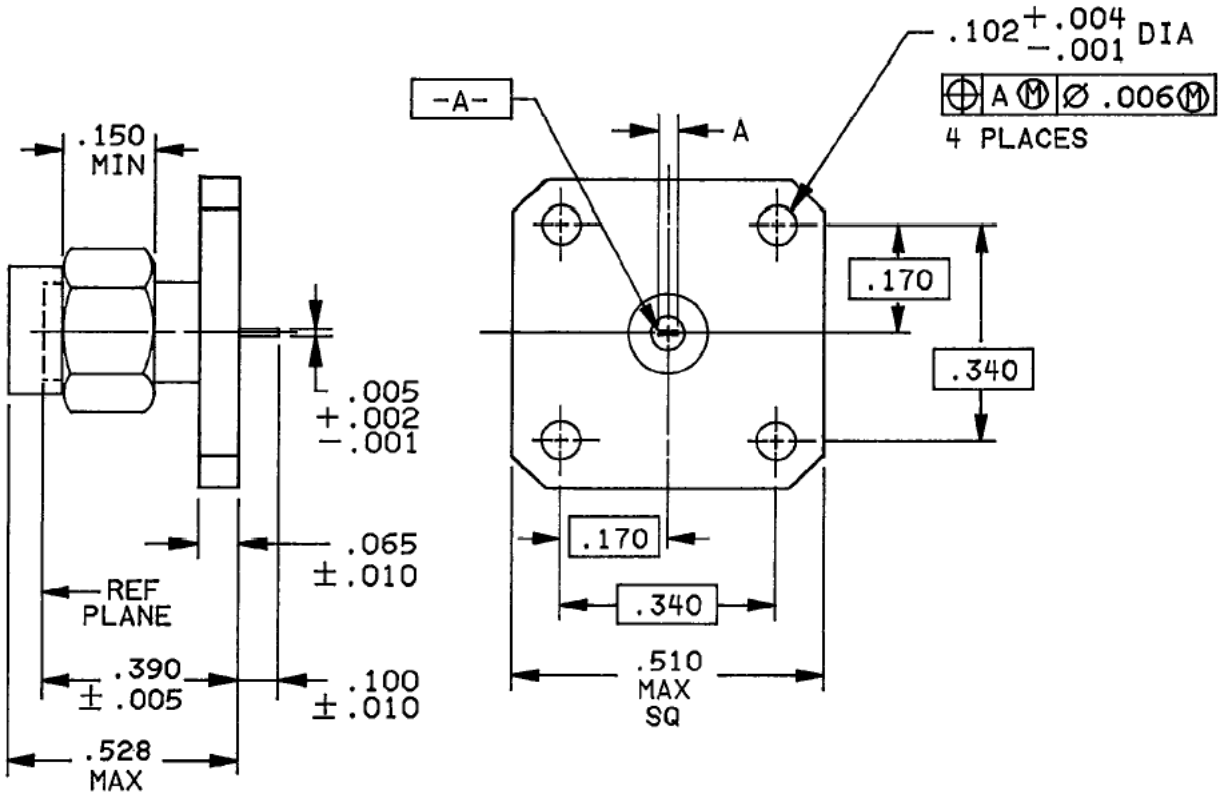


PART NO.	"A" DIM
-31001	.020 ± .002
-31002	.050 ± .001

INCHES	MM	INCHES	MM
.001	.03	.100	2.54
.002	.05	.102	2.59
.004	.10	.130	3.30
.005	.13	.150	3.81
.006	.15	.2405	6.11
.010	.25	.260	6.60
.020	.51	.390	9.91
.050	1.27	.4810	12.22
.065	1.65	.528	13.41
		.625	15.88

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

FIGURE 1. Series SMA, pin contact (2 hole) flange mounted receptacle.



PART NO.	"A" DIM
-31003	.020 ± .002
-31004	.050 ± .001

INCHES	MM	INCHES	MM
.001	.03	.065	1.65
.002	.05	.100	2.54
.004	.10	.102	2.59
.005	.13	.170	4.32
.006	.15	.340	8.64
.010	.25	.390	9.91
.020	.51	.510	12.95
.050	1.27	.528	13.41

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

FIGURE 2. Series SMA pin contact, (4 hole) flange mounted receptacle..

ENGINEERING PARAMETERS:

Nominal impedance: 50 ohms.

Voltage rating: 335 Vrms maximum at sea level.
150 Vrms maximum at 70,000 feet.

Frequency range: 0 to 18.0 GHz.

Temperature rating: -65°C to 105°C.

REQUIREMENTS:

Design and construction: See figures 1 and 2; table I and MIL-STD-348.

Force to engage and disengage:

Torque – 2 inch-pounds maximum.

Longitudinal force – Not applicable.

Coupling proof torque: 15 inch-pounds minimum.

Inspection note: For each test of threaded coupling connector where the test is performed on mated pairs, the pairs shall be torqued to 7 to 10 inch-pounds.

TABLE I. Part number and characteristics.

Part no. M83517/2-	Connector figure no.	Characteristics
31001	1	2 hole flange mount. .020 wide tab.
31002	1	2 hole flange mount. .050 wide tab.
31003	2	4 hole flange mount. .020 wide tab.
31004	2	4 hole flange mount. .050 wide tab.
32001	1	2 hole flange mount. .020 wide tab.
32002	1	2 hole flange mount. .050 wide tab.
32003	2	4 hole flange mount. .020 wide tab.
32004	2	4 hole flange mount. .050 wide tab.

Permeability of nonmagnetic materials: Applicable.

Seal:

Hermetic sealed connectors: Not applicable.

Pressurized and weatherproof connectors: Not applicable.

Insulation resistance: 5,000 megohms minimum. Test method 021B of EIA 364.

Center contact retention:

Axial force: 6 pounds minimum.

Torque: 4 inch-ounces minimum.

Dielectric withstanding voltage: Method 020B of EIA-364 Condition I.

Test voltage 1,000 Vrms.

Corrosion: Test method 026A of EIA 364 test condition B.

Voltage standing wave ratio (VSWR):

1.35 +.01 F (F in GHz), maximum. Test frequency range: From .5 to 18.0 GHz.

RF transmission loss: .07√F (tested from 2-18 GHz, F in GHz).

RF leakage: Not applicable.

Connector durability:

Interface:

500 cycles minimum at 12 cycles/minute maximum rate.

Connector shall meet contact gaging and force to engage and disengage requirements.

Contact resistance: In milliohms maximum.

	Initial	After environment
Center contact:	3.0	4.0
Outer contact:	2.0	Not applicable

Thermal shock: Applicable, test condition A.

Moisture resistance: Method 106 of MIL-STD-202.

No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

RF high potential withstanding voltage:

At a frequency between 5 to 7.5 MHz.

Leakage current – Not applicable.

RF voltage – 1,000 Vrms.

Coupling mechanism retention force: 60 pounds minimum.

Part number: M83517/2-(dash number from table I.)

Group qualification: See table II.

TABLE II. Group qualification.

Group	Submission and qualification of any of the following connectors 1/2/	Qualifies the following connectors
1	3+001	3+001 3+002 3+003 3+004

1/ Individual connectors other than listed are self qualifying only.

2/ Qualification of connectors, qualifies connectors of the same material only.
+ Denotes finish.

Specifications cited herein:

MIL-STD-202
MIL-STD-348
EIA 364

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5935-4608-002)

Review activities:
Army – AR, MI, AT
Navy – AS, MC, SH
Air Force – 11, 19, 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.

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DO NOT USE FOR ACQUISITION PURPOSES

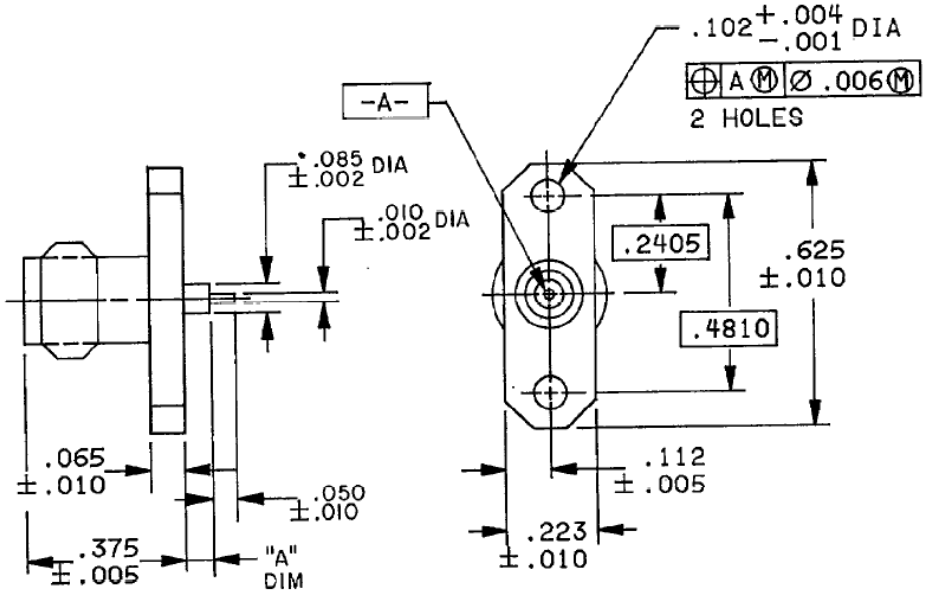
MIL-DTL-83517/4A
DRAFT
SUPERSEDING
MIL-C-83517/4
20 September 1982

DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLE, ELECTRICAL, COAXIAL, RADIO FREQUENCY, STRIP OR MICROSTRIP TRANSMISSION LINE, SERIES SMA (SOCKET CONTACT, FLANGE MOUNTED EXTENDED DIELECTRIC RECEPTACLE)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the connectors described herein shall consist of this specification and the latest issue of MIL-DTL-83517.

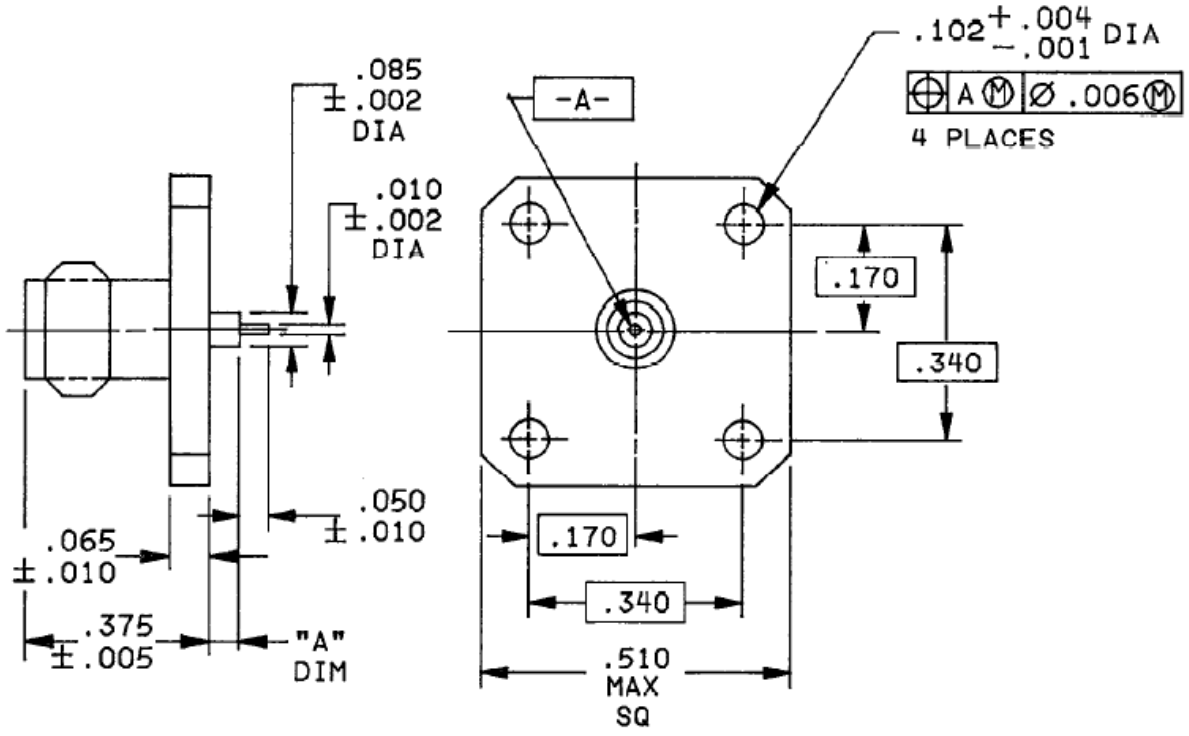


PART NO.	"A" DIM
-31001	.012 + .003 - .001
-31002	.018 + .003 - .001

INCHES	MM	INCHES	MM
.001	.03	.065	1.65
.002	.05	.085	2.16
.003	.08	.0102	2.59
.004	.10	.112	2.84
.005	.13	.125	3.18
.006	.15	.223	5.66
.010	.25	.2405	6.11
.050	1.27	.375	9.53
.057	1.45	.4810	12.22
		.625	15.88

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

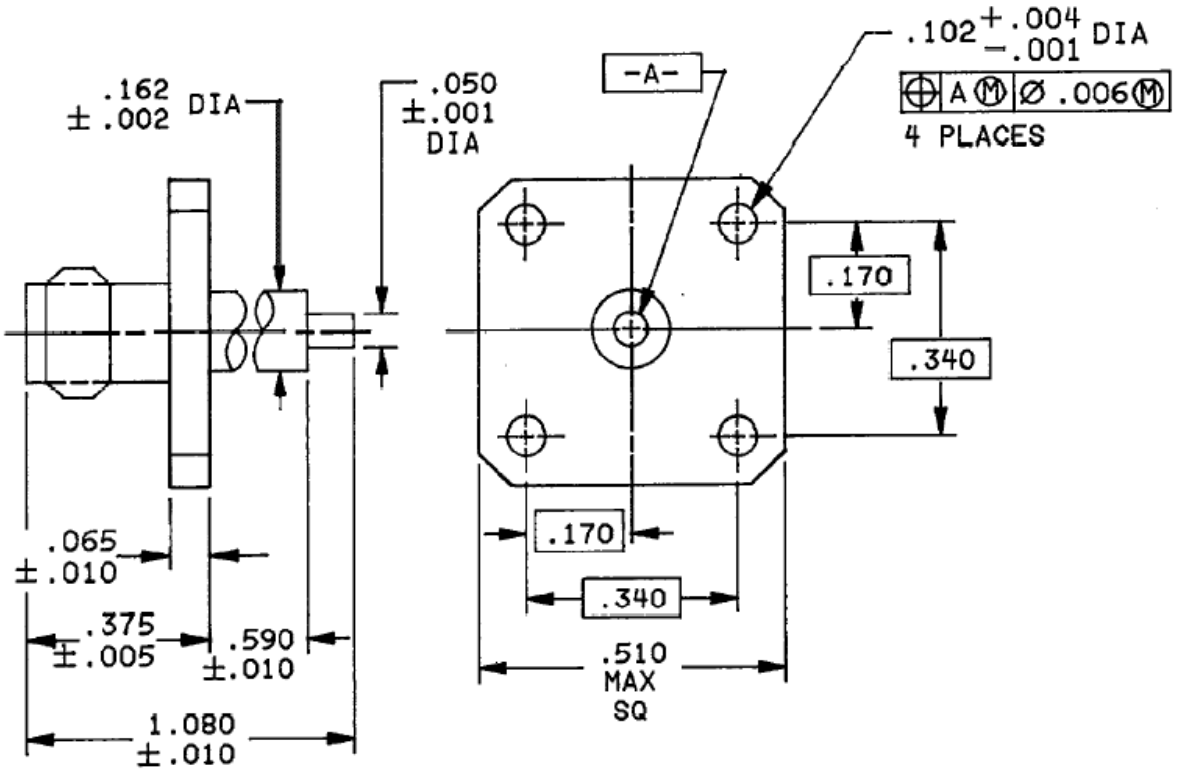
FIGURE 1. Series SMA, socket contact (2 hole) flange mounted receptacle, extended dielectric.



INCHES	MM	INCHES	MM
.001	.03	.065	1.65
.002	.05	.085	2.16
.004	.10	.102	2.59
.005	.13	.170	4.32
.006	.15	.340	8.64
.010	.25	.375	9.53
.010	.25	.510	12.96
.050	1.27		

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

FIGURE 2. Series SMA, socket contact, (4 hole) flange mounted receptacle .057 or .125 extended dielectric.



INCHES	MM	INCHES	MM
.001	.03	.102	2.59
.002	.05	.162	4.11
.004	.10	.170	4.32
.005	.13	.340	8.64
.006	.15	.375	9.53
.010	.25	.510	12.95
.050	1.27	.590	14.99
.065	1.65	1.080	27.43

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

FIGURE 3. Series SMA, socket contact, (4 hole) flange mounted receptacle, .590 (14.99 mm) extended dielectric.

ENGINEERING PARAMETERS:

Nominal impedance: 50 ohms.

Voltage rating: 335 Vrms maximum at sea level.
150 Vrms maximum at 70,000 feet.

Frequency range: 0 to 18.0 GHz.

Temperature rating: -65° to 105°C.

REQUIREMENTS:

Design and construction: See figures 1 through 3; table I and MIL-STD-348.

Force to engage and disengage:

Torque – 2 inch-pounds maximum.

Longitudinal force – Not applicable.

Coupling proof torque: Not applicable.

Inspection note: For each test of threaded coupling connector where the test is performed on mated pairs, the pairs shall be torqued to 7 to 10 inch-pounds.

Contact gaging: See figure 5.

Contacts with spring members:

Center contact (socket)

Oversize test pin - .0375 +.0001

Test pin finish – 16 microinches.

Insertion depth - .030/.045.

Number of insertions – 3.

Insertion force test: Steel test pin diameter .0370 + .0001.

Insertion depth - .050/.075.

Test pin finish – 16 microinches.

Insertion force – 3 pounds maximum.

Withdrawal force test: Steel test pin diameter .0355 - .0001

Insertion depth - .050/.075.

Withdrawal force – 1 ounce minimum.

Test pin finish – 16 microinches.

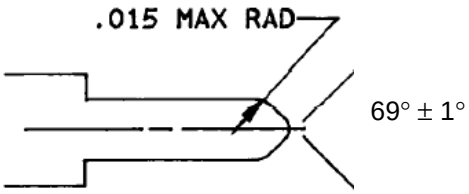


FIGURE 4. Test pin data.

TABLE I. Part number and characteristics.

Part no. M83517/4-	Connector figure no.	Characteristics
31001	1	2 hole flange receptacle. .010 diameter terminal for .062 thick panel.
31002	1	2 hole flange receptacle. .010 diameter terminal for .125 thick panel.
31003	2	4 hole flange receptacle. .010 diameter terminal for .062 thick panel.
31004	2	4 hole flange receptacle. .010 diameter terminal for .125 thick panel.
31005	3	4 hole flange receptacle. .050 diameter terminal.

Permeability of nonmagnetic materials: Applicable.

Seal:

Hermetic sealed connectors: Not applicable.

Pressurized and weatherproof connectors: Not applicable.

Insulation resistance: 5,000 megohms minimum. Test method 021B of EIA 364.

Center contact retention:

Axial force: 6 pounds minimum.

Torque: 4 inch-ounces minimum.

Dielectric withstanding voltage: Method 020B of EIA 364 test condition I.

Test voltage 1,000 Vrms.

Corrosion: Test method 026A of EIA 364 test condition B.

Voltage standing wave ratio (VSWR):

1.35 +.01 F (F in GHz), maximum. Test frequency range: From .5 to 18.0 GHz.

RF transmission loss: .07 $\sqrt{F}$ (tested 2-18 GHz, F in GHz).

RF leakage: Not applicable.

Connector durability:

Interface:

500 cycles minimum at 12 cycles/minute maximum rate.

Connector shall meet contact gaging and force to engage and disengage requirements.

Contact resistance: In milliohms maximum.

	Initial	After environment
Center contact:	3.0	4.0
Outer contact:	2.0	Not applicable

Thermal shock: Applicable, test condition A.

Moisture resistance: Method 106 of MIL-STD-202.

No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

RF high potential withstanding voltage:

At a frequency between 5 to 7.5 MHz.

Leakage current – Not applicable.

RF voltage – 670 Vrms.

Coupling mechanism retention force: Not applicable.

Part number: M83517/4-(dash number from table I.)

Group qualification: See table II.

TABLE II. Group qualification.

Group	Submission and qualification of any of the following connectors 1/2/	Qualifies the following connectors
I	3+001	3+001 3+002 3+006 3+007
II	3+005	3+005

1/ Individual connectors other than listed are self qualifying only.

2/ Qualification of connectors qualifies connectors of the same material only.

+ Denotes finish.

Specifications cited herein:

MIL-STD-202
MIL-STD-348
EIA 364

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA - CC

Preparing activity:
DLA – CC

(Project 5935-4608-004)

Review activities:
Army – AR, AT, CR4, MI
Navy – AS, MC, OS, SH
Air Force – 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.

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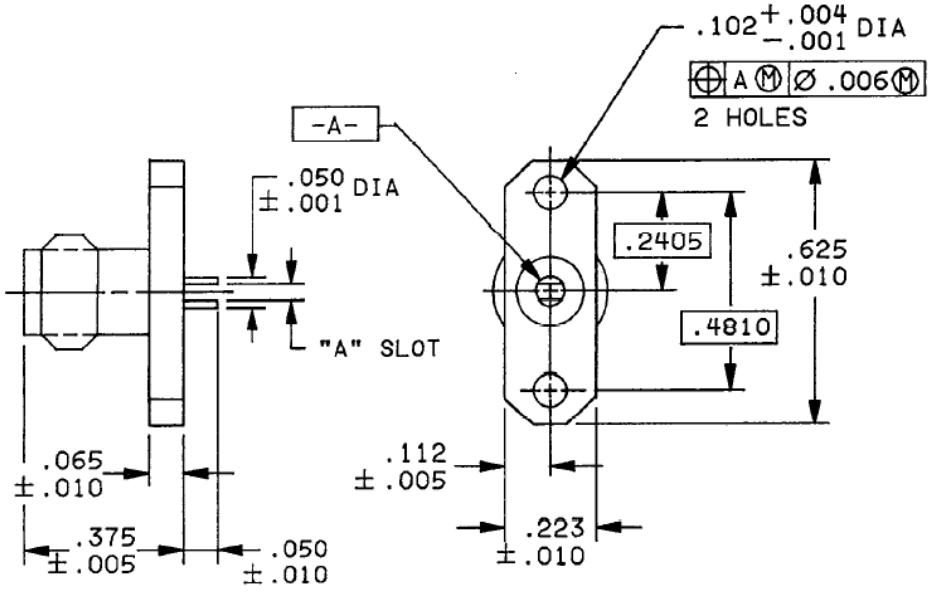
MIL-DTL-83517/3A
DRAFT
SUPERSEDING
MIL-C-83517/3
20 September 1982

DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLE, ELECTRICAL, COAXIAL, RADIO FREQUENCY,
STRIP OR MICROSTRIP TRANSMISSION LINE,
SERIES SMA (SOCKET CONTACT, FLANGE MOUNTED SLOTTED TAB TERMINAL RECEPTACLE)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the connectors described herein shall consist of this specification and the latest issue of MIL-DTL-83517A.

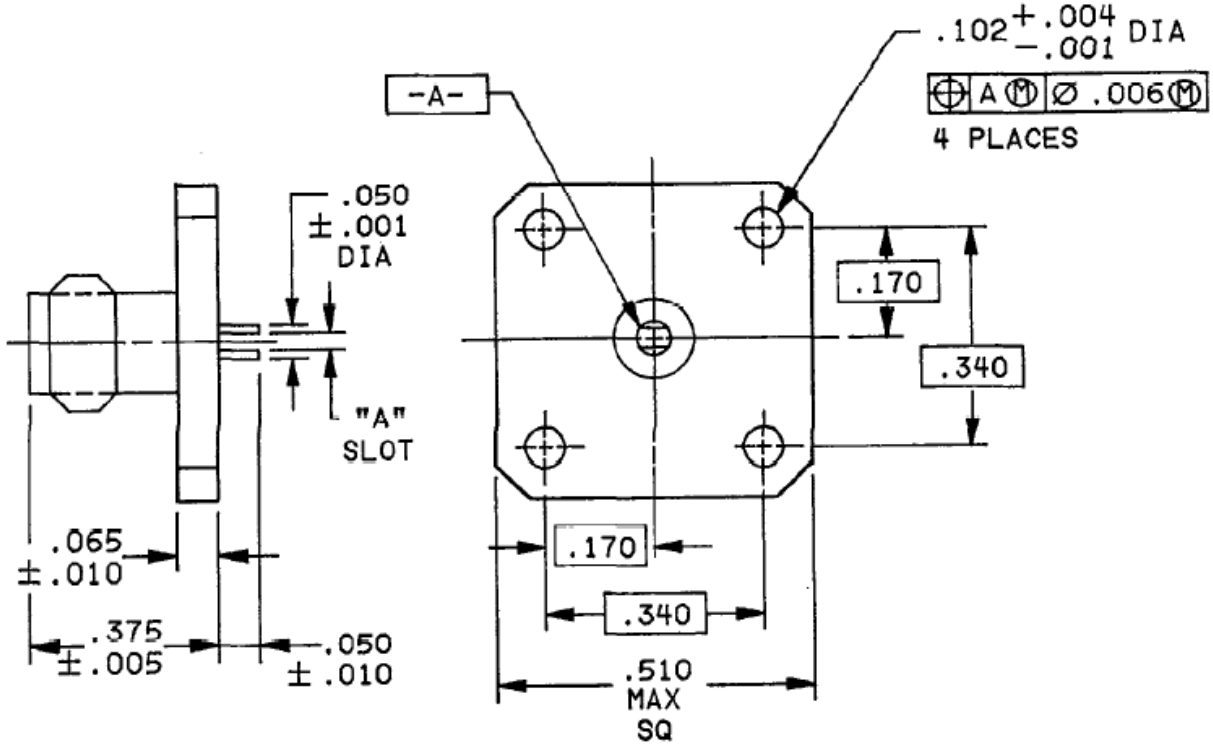


PART NO.	"A" DIM
-31001	.012 + .003 - .001
-31002	.018 + .003 - .001
-31003	.028 + .003 - .001

INCHES	MM	INCHES	MM
.001	.03	.028	.71
.002	.05	.050	1.27
.003	.08	.065	1.65
.004	.10	.102	2.59
.005	.13	.112	2.84
.006	.15	.223	5.66
.010	.25	.2405	6.11
.012	.30	.375	9.53
.018	.46	.4810	12.22
		.625	15.88

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

FIGURE 1. Series SMA, socket contact (2 hole) flange mounted receptacle.

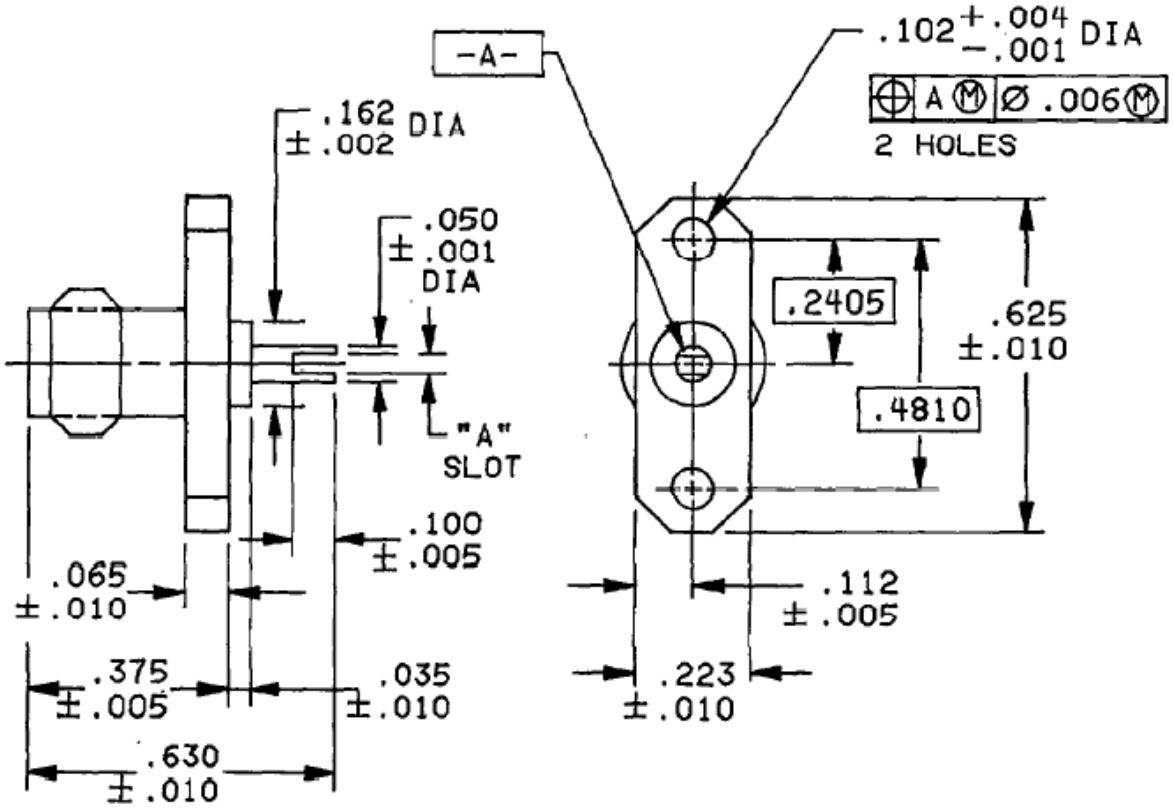


PART NO.	"A" DIM
-31001	.012 + .003 - .001
-31002	.018 + .003 - .001
-31003	.028 + .003 - .001

INCHES	MM	INCHES	MM
.001	.03	.028	.71
.003	.08	.050	1.27
.004	.10	.065	1.65
.005	.13	.102	2.59
.006	.15	.170	4.32
.010	.25	.340	8.64
.012	.30	.375	9.53
.018	.46	.510	12.95

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

FIGURE 2. Series SMA, socket contact, (4 hole) flange mounted receptacle.



PART NO.	"A" DIM
-31001	.025 ±.002

INCHES	MM	INCHES	MM
.001	.03	.065	1.65
.002	.05	.100	2.54
.003	.08	.102	2.59
.004	.10	.112	2.84
.005	.13	.162	4.11
.006	.15	.223	5.66
.010	.25	.2405	6.11
.025	.64	.375	9.53
.035	.89	.4810	12.22
.050	1.27	.625	15.00
		.630	16.00

NOTES:
1. dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

FIGURE 3. Series SMA, socket contact, (2 hole) flange mounted receptacle, extended contact.

ENGINEERING PARAMETERS:

Nominal impedance: 50 ohms.

Voltage rating: 335 Vrms maximum at sea level.
150 Vrms maximum at 70,000 feet.

Frequency range: 0 to 18.0 GHz.

Temperature rating: -65°C to 105°C.

REQUIREMENTS:

Design and construction: See figures 1 through 3; table I and MIL-STD-348.

Force to engage and disengage:

Torque – 2 inch-pounds maximum.

Longitudinal force – Not applicable.

Coupling proof torque: Not applicable.

Inspection note: For each test of threaded coupling connector where the test is performed on mated pairs, the pairs shall be torqued to 7 to 10 inch-pounds.

Contact gaging: See figure 5.

Contacts with spring members:

Center contact (socket)

Oversize test pin - .0375 +.0001

Test pin finish – 16 microinches.

Insertion depth - .030/.045.

Number of insertions – 3.

Insertion force test: Steel test pin diameter .0370 + .0001.

Insertion depth - .050/.075.

Test pin finish – 16 microinches.

Insertion force – 3 pounds maximum.

Withdrawal force test: Steel test pin diameter .0355 - .0001

Insertion depth - .050/.075.

Withdrawal force – 1 ounce minimum.

Test pin finish – 16 microinches.

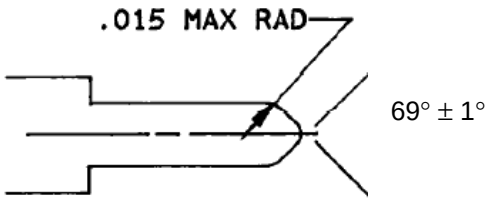


FIGURE 4. Test pin data.

TABLE I. Part number and characteristics.

Part no. M83517/3-	Connector figure no.	Characteristics
31001	1	2 hole flange mount. .012 wide tab.
31002	1	2 hole flange mount. .018 wide tab.
31003	1	2 hole flange mount. .028 wide tab.
31004	2	4 hole flange mount. .012 wide tab.
31005	2	4 hole flange mount. .018 wide tab.
31006	2	4 hole flange mount. .028 wide tab.
31007	3	2 hole flange mount. .025 wide tab.

Permeability of nonmagnetic materials: Applicable.

Seal:

Hermetic sealed connectors: Not applicable.

Pressurized and weatherproof connectors: Not applicable.

Insulation resistance: 5,000 megohms minimum. Test method 021B of EIA 364.

Center contact retention:

Axial force: 6 pounds minimum.

Torque: 4 inch-ounces minimum.

Dielectric withstanding voltage: Method 020B of EIA 364 test condition I.

Test voltage 1,000 Vrms.

Corrosion: Test method 026A of EIA 364 test condition B.

Voltage standing wave ratio (VSWR):

1.35 +.01 F (F in GHz), maximum. Test frequency range: From .5 to 18.0 GHz.

RF transmission loss: .07 $\sqrt{F}$ (tested from 2-18 GHz, F in GHz).

RF leakage: Not applicable.

Connector durability:

Interface:

500 cycles minimum at 12 cycles/minute maximum rate.

Connector shall meet contact gaging and force to engage and disengage requirements.

Contact resistance: In milliohms maximum.

	Initial	After environment
Center contact:	3.0	4.0
Outer contact:	2.0	Not applicable

Thermal shock: Applicable, test condition A.

Moisture resistance: Method 106 of MIL-STD-202.

No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

RF high potential withstanding voltage:

At a frequency between 5 to 7.5 MHz.

Leakage current – Not applicable.

RF voltage – 670 Vrms.

Coupling mechanism retention force: Not applicable.

Part number: M83517/3-(dash number from table I.)

Group qualification: See table II.

TABLE II. Group qualification.

Group	Submission and qualification of any of the following connectors 1/2/	Qualifies the following connectors
1	3+001	3+001 3+002 3+003 3+004 3+005 3+006 3+007

1/ Individual connectors other than listed are self qualifying only.
2/ Qualification of connectors qualifies connectors of the same material only.
+ Denotes finish.

Specifications cited herein:

MIL-STD-202
MIL-STD-348
EIA 364

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA - CC

Preparing activity:
DLA – CC

(Project 5935-4608-003)

Review activities:
Army – AR, AT, CR4, MI
Navy – AS, MC, OS, SH
Air Force – 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.

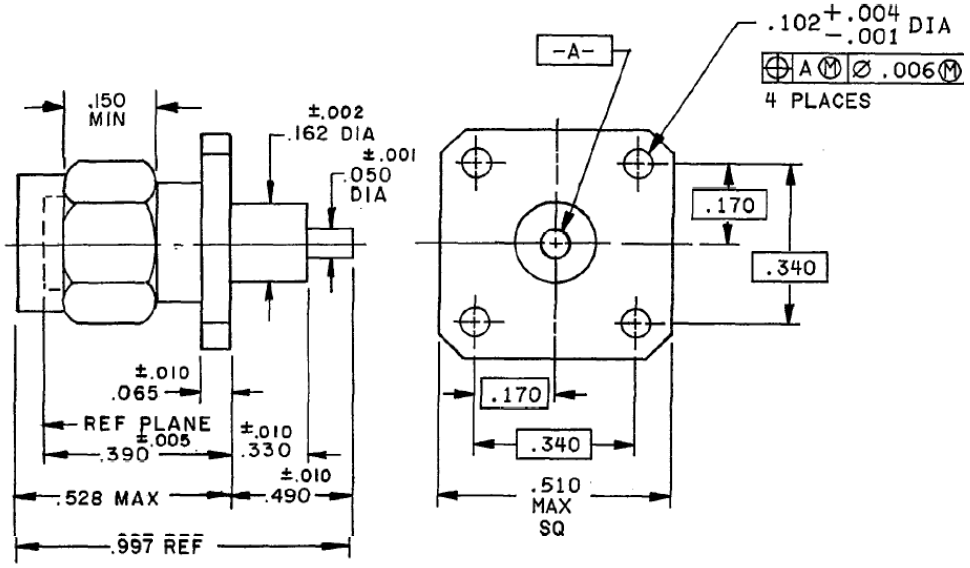
MIL-DTL-83517/5A
DRAFT
SUPERSEDING
MIL-C-83517/5
20 September 1982

DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLES, ELECTRICAL, COAXIAL, RADIO FREQUENCY, STRIP OR MICROSTRIP TRANSMISSION LINE, SERIES SMA (PIN CONTACT, FLANGE MOUNTED EXTENDED DIELECTRIC RECEPTACLE)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the connectors described herein shall consist of this specification and the latest issue of MIL-DTL-83517A.



INCHES	MM	INCHES	MM
.001	.03	.150	3.81
.002	.05	.162	4.11
.004	.10	.170	4.32
.005	.13	.330	8.38
.006	.15	.340	8.64
.010	.25	.390	9.91
.050	1.27	.490	12.45
.065	1.65	.510	12.95
.102	2.59	.528	13.41
		.997	25.32

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

FIGURE 1. Series SMA, pin contact (4 hole) flange mounted receptacle, extended dielectric.

ENGINEERING PARAMETERS:

Nominal impedance: 50 ohms.

Voltage rating: 335 Vrms maximum at sea level.
150 Vrms maximum at 70,000 feet.

Frequency range: 0 to 18.0 GHz.

Temperature rating: -65° to 105°C.

REQUIREMENTS:

Design and construction: See figures 1, table I and MIL-STD-348.

Force to engage and disengage:

Torque – 2 inch-pounds maximum.

Longitudinal force – Not applicable.

Coupling proof torque: 15 inch-pounds minimum.

Inspection note: For each test of threaded coupling connector where the test is performed on mated pairs, the pairs shall be torqued to 7 to 10 inch-pounds.

TABLE I. Part number and characteristics.

Part no. M83517/05-	Connector figure no.	Characteristics
31001	1	4 hole flange receptacle, .050 diameter terminal

Permeability of nonmagnetic materials: Applicable.

Seal:

Hermetic sealed connectors: Not applicable.

Pressurized and weatherproof connectors: Not applicable.

Insulation resistance: 5,000 megohms minimum. Test method 021B of EIA 364.

Center contact retention:

Axial force: 6 pounds minimum.

Torque: 4 inch-ounces minimum.

Dielectric withstanding voltage: Method 020B of EIA 364 condition I.

Test voltage 1,000 Vrms.

Corrosion: Test method 026A of EIA 364 condition B.

Voltage standing wave ratio (VSWR):

1.35 +.01 F (F in GHz), maximum. Test frequency range: From .5 to 18.0 GHz.

RF transmission loss: .07√F (tested from 2-18 GHz, F in GHz)..

RF leakage: Not applicable.

Connector durability:

Interface:

500 cycles minimum at 12 cycles/minute maximum rate.

Connector shall meet contact gaging and force to engage and disengage requirements.

Contact resistance: In milliohms maximum.

	Initial	After environment
Center contact:	3.0	4.0
Outer contact:	2.0	Not applicable

Thermal shock: Applicable, test condition A.

Moisture resistance: Method 106 of MIL-STD-202.

No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

RF high potential withstanding voltage:

At a frequency between 5 to 7.5 MHz.

Leakage current – Not applicable.

RF voltage – 670 Vrms.

Coupling mechanism retention force: 60 pounds minimum.

Part number: M83517/5-(dash number from table I.)

Specifications cited herein:

MIL-STD-202
MIL-STD-348
EIA 364

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA - CC

Preparing activity:
DLA – CC

(Project 5935-4608-005)

Review activities:
Army – AR, AT, CR4, MI
Navy – AS, MC, OS, SH
Air Force – 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.

Note: This draft dated 31 October 2003, prepared by the Defense Supply Center Columbus (DSCC-VAI) has not been approved and is subject to modification.
DO NOT USE FOR ACQUISITION PURPOSES

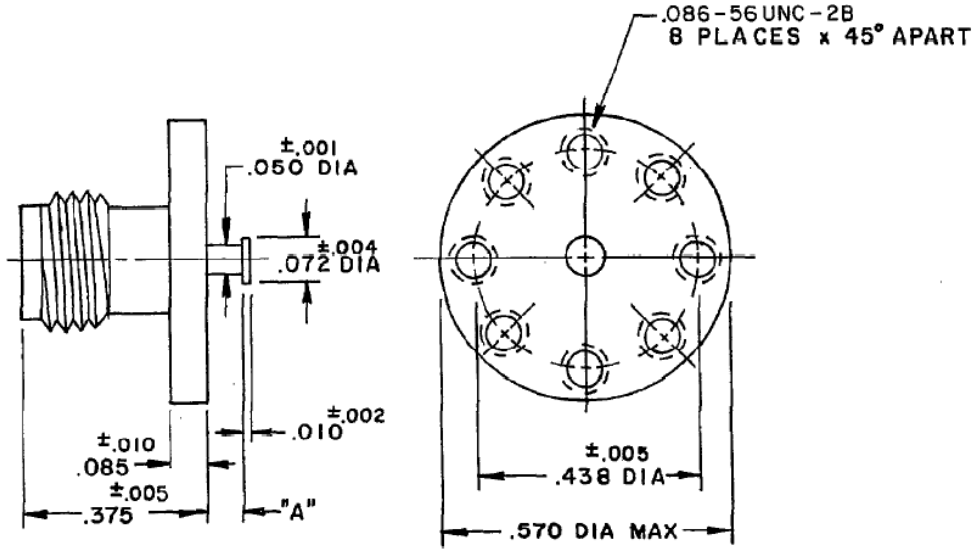
MIL-DTL-83517/6A
DRAFT
SUPERSEDING
MIL-C-83517/6
20 September 1982

DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLES, ELECTRICAL,COAXIAL, RADIO FREQUENCY,
STRIP OR MICROSTRIP TRANSMISSION LINE,
SERIES SMA (SOCKET CONTACT, 8 HOLE SURFACE LAUNCH RECEPTACLE)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the connectors described herein shall consist of this specification and the latest issue of MIL-DTL-83517A.



PART NO.	"A" DIM	TRANSMISSION LINE THICKNESS
-31001	.060 ± .003	.125
-31002	.120 ± .003	.250

INCHES	MM	INCHES	MM
.001	.03	.072	1.83
.002	.05	.085	2.16
.004	.10	.086	2.18
.005	.13	.120	3.05
.010	.25	.125	3.18
.050	1.27	250	6.35
.060	1.52	.375	9.53
		.438	11.13
		.570	14.48

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

FIGURE 1. Series SMA, socket contact, surface launch receptacle.

ENGINEERING PARAMETERS:

Nominal impedance: 50 ohms.

Voltage rating: 335 Vrms maximum at sea level.
150 Vrms maximum at 70,000 feet.

Frequency range: 0 to 12.4 GHz.

Temperature rating: -65° to 105°C.

REQUIREMENTS:

Design and construction: See figure 1, table I and MIL-STD-348.

Force to engage and disengage:

Torque – 2 inch-pounds maximum.

Longitudinal force – Not applicable.

Coupling proof torque: Not applicable.

Inspection note: For each test of threaded coupling connector where the test is performed on mated pairs, the pairs shall be torqued to 7 to 10 inch-pounds.

Contact gaging: See figure 3.

Contacts with spring members:

Center contact (socket)

Oversize test pin - .0375 +.0001

Test pin finish – 16 microinches.

Insertion depth - .030/.045.

Number of insertions – 3.

Insertion force test: Steel test pin diameter .0370 + .0001.

Insertion depth - .050/.075.

Test pin finish – 16 microinches.

Insertion force – 3 pounds maximum.

Withdrawal force test: Steel test pin diameter .0355 - .0001

Insertion depth - .050/.075.

Withdrawal force – 1 ounce minimum.

Test pin finish – 16 microinches.

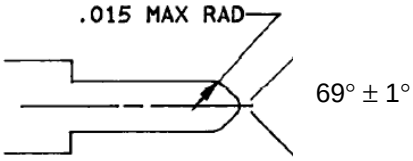


FIGURE 3. Test pin data.

TABLE I. Part number and characteristics.

Part no. M83517/6-	Connector figure no.	Characteristics
31001	1	Strip transmission line surface launch, receptacle for 1/8" strip transmission line
31002	1	Strip transmission line surface launch, receptacle for ¼" strip transmission line.

Permeability of nonmagnetic materials: Applicable.

Seal:

Hermetic sealed connectors: Not applicable.

Pressurized and weatherproof connectors: Not applicable.

Insulation resistance: 5,000 megohms minimum. Test method 021B of EIA 364.

Center contact retention:

Axial force: Not applicable.

Torque: Not applicable.

Dielectric withstanding voltage: Method 020B of EIA 364 test condition I.

Test voltage 1,000 Vrms.

Corrosion: Test method 026A of EIA 364 test condition B.

Voltage standing wave ratio (VSWR):

1.35 +.01 F (F in GHz), maximum. Test frequency range: From .5 to 18.0 GHz.

RF transmission loss: .07√F (tested from 2-18 GHz, F in GHz)..

RF leakage: Not applicable.

Connector durability:

Interface:

500 cycles minimum at 12 cycles/minute maximum rate.

Connector shall meet contact gaging and force to engage and disengage requirements.

Contact resistance: In milliohms maximum.

	Initial	After environment
Center contact:	3.0	4.0
Outer contact:	2.0	Not applicable

Thermal shock: Applicable, test condition A.

Moisture resistance: Method 106 of MIL-STD-202.

No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

RF high potential withstanding voltage:

At a frequency between 5 to 7.5 MHz.

Leakage current – Not applicable.

RF voltage – 670 Vrms.

Coupling mechanism retention force: Not applicable.

Part number: M83517/6-(dash number from table I.)

Group qualification: See table II.

TABLE II. Group qualification.

Group	Submission and qualification of any of the following connectors 1/2/	Qualifies the following connectors
1	3+001	3+001 3+002

1/ Individual connectors other than listed are self qualifying only.

2/ Qualification of connectors qualifies connectors of the same material only.

+ Denotes finish.

Specifications cited herein:

MIL-STD-202
MIL-STD-348
EIA 364

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA - CC

Preparing activity:
DLA – CC

(Project 5935-4608-006)

Review activities:
Army – AR, AT, CR4, MI
Navy – AS, MC, OS, SH
Air Force – 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.

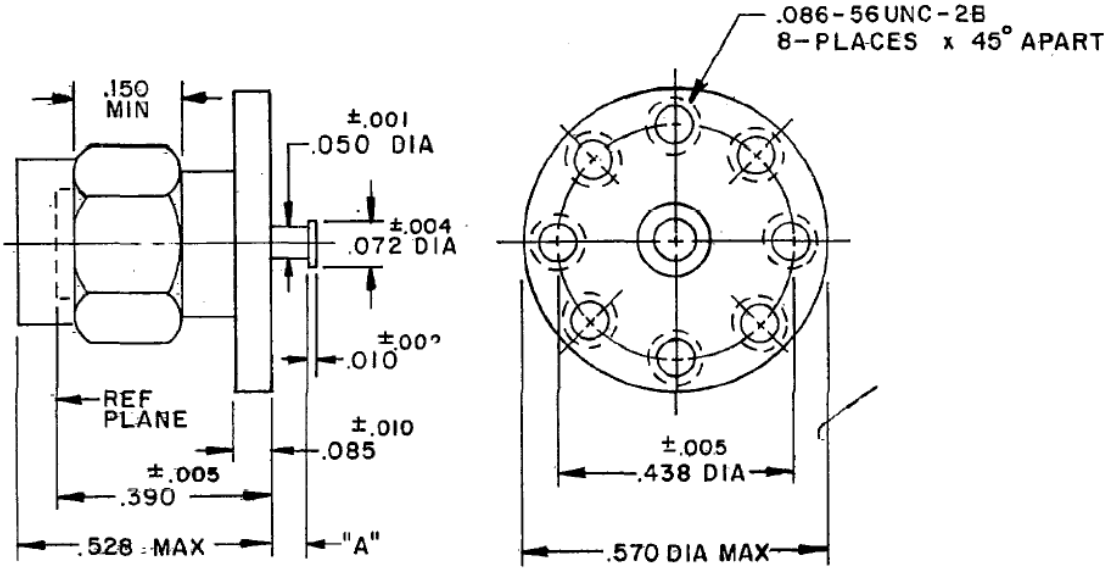
MIL-DTL-83517/7A
DRAFT
SUPERSEDING
MIL-C-83517/7
20 September 1982

DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLES, ELECTRICAL, COAXIAL, RADIO FREQUENCY, STRIP OR MICROSTRIP TRANSMISSION LINE, SERIES SMA (PIN CONTACT, 8 HOLE SURFACE LAUNCH RECEPTACLE)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the connectors described herein shall consist of this specification and the latest issue of MIL-DTL-83517A.



PART NO.	"A" DIM	TRANSMISSION LINE THICKNESS
-31001	.060±.003	.125
-31002	.120±.003	.250

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.

INCHES	MM	INCHES	MM
.001	.03	.085	2.16
.002	.05	.120	3.05
.003	.08	.125	3.18
.004	.10	.250	6.35
.005	.13	.390	9.91
.010	.25	.4375	11.11
.050	1.27	.438	11.13
.068	1.73	.528	13.41
.072	1.83	.570	14.48

FIGURE 1. Series SMA, pin contact surface launch receptacle.

ENGINEERING PARAMETERS:

Nominal impedance: 50 ohms.

Voltage rating: 335 Vrms maximum at sea level.
150 Vrms maximum at 70,000 feet.

Frequency range: 0 to 12.4 GHz.

Temperature rating: -65° to 105°C.

REQUIREMENTS:

Design and construction: See figure 1, table I and MIL-STD-348.

Force to engage and disengage:

Torque – 2 inch-pounds maximum.

Longitudinal force – Not applicable.

Coupling proof torque: 15 inch-pounds minimum.

Inspection note: For each test of threaded coupling connector where the test is performed on mated pairs, the pairs shall be torqued to 7 to 10 inch-pounds.

TABLE I. Part number and characteristics.

Part no. M83517/7-	Connector figure no.	Characteristics
31001	1	Strip transmission line surface launch, receptacle for 1/8" strip transmission line.
31002	1	Strip transmission line surface launch, receptacle for ¼" strip transmission line.

Permeability of nonmagnetic materials: Applicable.

Seal:

Hermetic sealed connectors: Not applicable.

Pressurized and weatherproof connectors: Not applicable.

Insulation resistance: 5,000 megohms minimum. Test method 021B of EIA 364.

Center contact retention:

Axial force: Not applicable.

Torque: Not applicable.

Dielectric withstanding voltage: Method 020B of EIA 364 condition I.

Test voltage 1,000 Vrms.

Corrosion: Test method 026A of EIA 364 test condition B.

Voltage standing wave ratio (VSWR):

1.35 +.01 F (F in GHz), maximum. Test frequency range: From .5 to 18.0 GHz.

RF transmission loss: .07√F (tested from 2-18 GHz, F in GHz).

RF leakage: Not applicable.

Connector durability:

Interface:

500 cycles minimum at 12 cycles/minute maximum rate.

Connector shall meet contact gaging and force to engage and disengage requirements.

Contact resistance: In milliohms maximum.

	Initial	After environment
Center contact:	3.0	4.0
Outer contact:	2.0	Not applicable

Thermal shock: Applicable, test condition A.

Moisture resistance: Method 106 of MIL-STD-202.

No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

RF high potential withstanding voltage:

At a frequency between 5 to 7.5 MHz.

Leakage current – Not applicable.

RF voltage – 670 Vrms.

Coupling mechanism retention force: 60 pounds minimum.

Part number: M83517/7-(dash number from table I.)

Group qualification: See table II.

TABLE II. Group qualification.

Group	Submission and qualification of any of the following connectors 1/2/	Qualifies the following connectors
1	3+001	3+001 3+002

1/ Individual connectors other than listed are self qualifying only.

2/ Qualification of connectors qualifies connectors of the same material only.

+ Denotes finish.

Specifications cited herein:

MIL-STD-202
MIL-STD-348
EIA 364

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA - CC

Preparing activity:
DLA – CC

(Project 5935-4608-007)

Review activities:
Army – AR, AT, CR4, MI
Navy – AS, MC, OS, SH
Air Force – 99

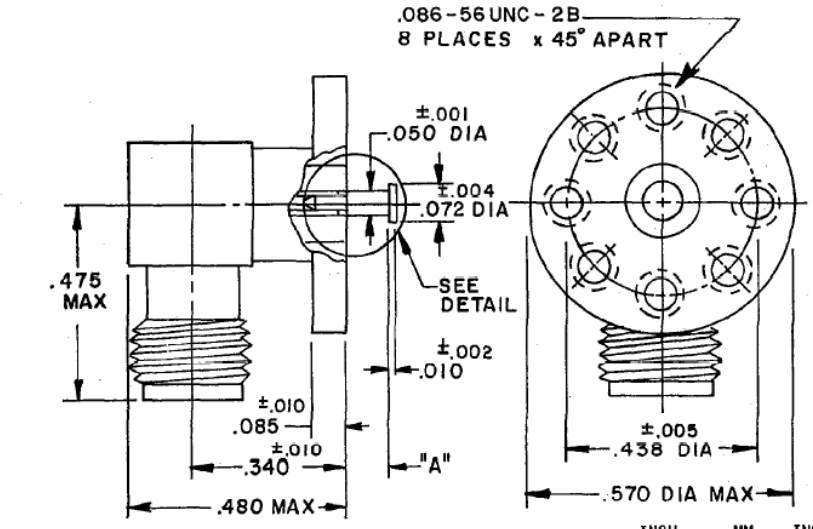
NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.

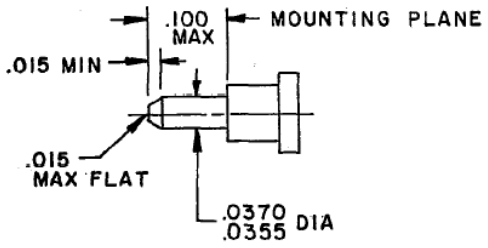
DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLE, ELECTRICAL, COAXIAL, RADIO FREQUENCY, STRIP OR MICROSTRIP TRANSMISSION LINE, SERIES SMA (SOCKET CONTACT, 8 HOLE SURFACE LAUNCH RIGHT ANGLE RECEPTACLE)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the connectors described herein shall consist of this specification and the latest issue of MIL-DTL-83517A.





DETAIL
TRANSITION END

INCH	MM	INCH	MM
.001	.03	.085	2.16
.002	.05	.100	2.54
.003	.08	.120	3.05
.004	.10	.125	3.18
.005	.13	.250	6.35
.010	.25	.340	8.64
.015	.38	.4375	11.11
.0355	.90	.438	11.13
.0370	.94	.475	12.07
.050	1.27	.480	12.19
.060	1.52	.570	14.48
.072	1.83		

PART NO.	"A"DIM	TRANSMISSION LINE THICKNESS
-31001	.060±.003	.125
-31002	.120±.003	.250

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.

ENGINEERING PARAMETERS:

Nominal impedance: 50 ohms.

Voltage rating: 335 Vrms maximum at sea level.
150 Vrms maximum at 70,000 feet.

Frequency range: 0 to 12.4 GHz.

Temperature rating: -65° to 105°C.

REQUIREMENTS:

Design and construction: See figure 1,table I AND mil-std-348.

Force to engage and disengage:

Torque – 2 inch-pounds maximum.

Longitudinal force – Not applicable.

Coupling proof torque: Not applicable.

Inspection note: For each test of threaded coupling connector where the test is performed on mated pairs, the pairs shall be torqued to 7 to 10 inch-pounds.

Contact gaging: See figure 3.

Contacts with spring members:

Center contact (socket)

Oversize test pin - .0375 +.0001

Test pin finish – 16 microinches.

Insertion depth - .030/.045.

Number of insertions – 3.

Insertion force test: Steel test pin diameter .0370 + .0001.

Insertion depth - .050/.075.

Test pin finish – 16 microinches.

Insertion force – 3 pounds maximum.

Withdrawal force test: Steel test pin diameter .0355 - .0001

Insertion depth - .050/.075.

Withdrawal force – 1 ounce minimum.

Test pin finish – 16 microinches.

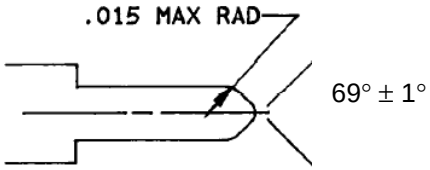


FIGURE 3. Test pin data.

TABLE I. Part number and characteristics.

Part no. M83517/8-	Connector figure no.	Characteristics
31001	1	Strip transmission line surface launch, right angle receptacle for 1/8" strip transmission line.
31002	1	Strip transmission line surface launch, right angle receptacle, for ¼" strip transmission line.

Permeability of nonmagnetic materials: Applicable.

Seal:

Hermetic sealed connectors: Not applicable.

Pressurized and weatherproof connectors: Not applicable.

Insulation resistance: 5,000 megohms minimum. Test method 021B of EIA 364.

Center contact retention (excluding transition end):

Axial force: 6 pounds minimum.

Torque: 4 inch-ounces minimum.

Dielectric withstanding voltage: Method 020B of EIA 364 Condition I.

Test voltage 1,000 Vrms.

Corrosion: Test method 026A of EIA 364 test condition B.

Voltage standing wave ratio (VSWR):

1.35 +.01 F (F in GHz), maximum. Test frequency range: From .5 to 18.0 GHz.

RF transmission loss: .07$\sqrt{F}$ (tested from 2-18 GHz, F in GHz)..

RF leakage: Not applicable.

Connector durability:

Interface:

500 cycles minimum at 12 cycles/minute maximum rate.

Connector shall meet contact gaging and force to engage and disengage requirements.

Contact resistance: In milliohms maximum.

	Initial	After environment
Center contact:	3.0	4.0
Outer contact:	2.0	Not applicable

Thermal shock: Applicable, test condition A.

Moisture resistance: Method 106 of MIL-STD-202.

No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

RF high potential withstanding voltage:

At a frequency between 5 to 7.5 MHz.

Leakage current – Not applicable.

RF voltage – 670 Vrms.

Coupling mechanism retention force: 60 pounds minimum.

Part number: M83517/8-(dash number from table I.)

Group qualification: See table II.

TABLE II. Group qualification.

Group	Submission and qualification of any of the following connectors 1/2/	Qualifies the following connectors
1	3+001	3+001 3+002

1/ Individual connectors other than listed are self qualifying only.

2/ Qualification of connectors qualifies connectors of the same material only.

+ Denotes finish.

Specifications cited herein:

MIL-STD-202
MIL-STD-348
EIA 364

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA - CC

Preparing activity:
DLA – CC

(Project 5935-4608-008)

Review activities:
Army – AR, AT, CR4, MI
Navy – AS, MC, OS, SH
Air Force – 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.

Note: This draft dated 31 October 2003, prepared by the Defense Supply Center Columbus (DSCC-VAI) has not been approved and is subject to modification.
DO NOT USE FOR ACQUISITION PURPOSES

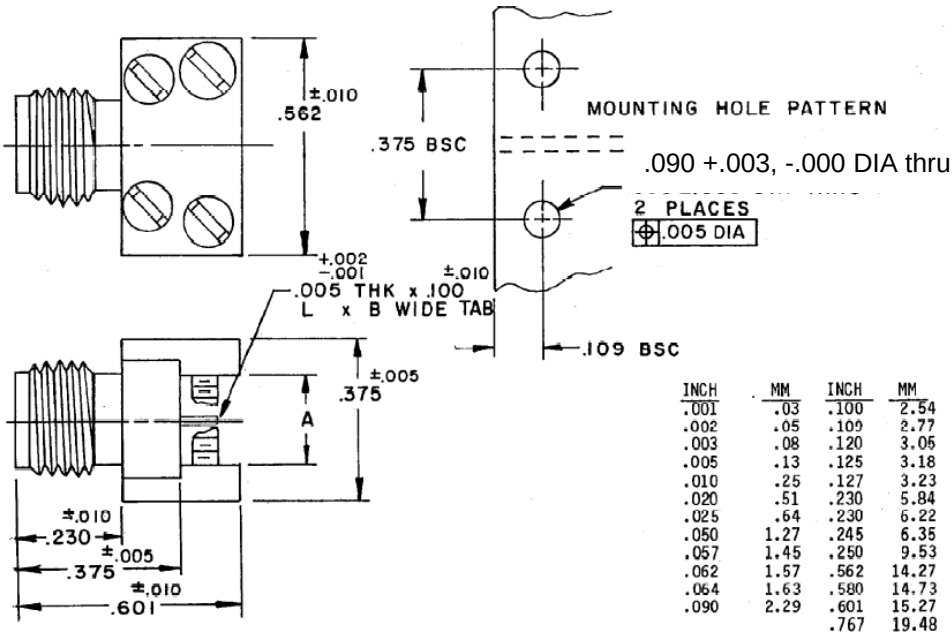
MIL-DTL-83517/9A
DRAFT
SUPERSEDING
MIL-C-83517/9
20 September 1982

DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLES, ELECTRICAL, RADIO FREQUENCY, STRIP OR MICROSTRIP TRANSMISSION LINE, SERIES SMA (SOCKET CONTACT, END LAUNCH RECEPTACLE)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the connectors described herein shall consist of this specification and the latest issue of MIL-DTL-83517A.



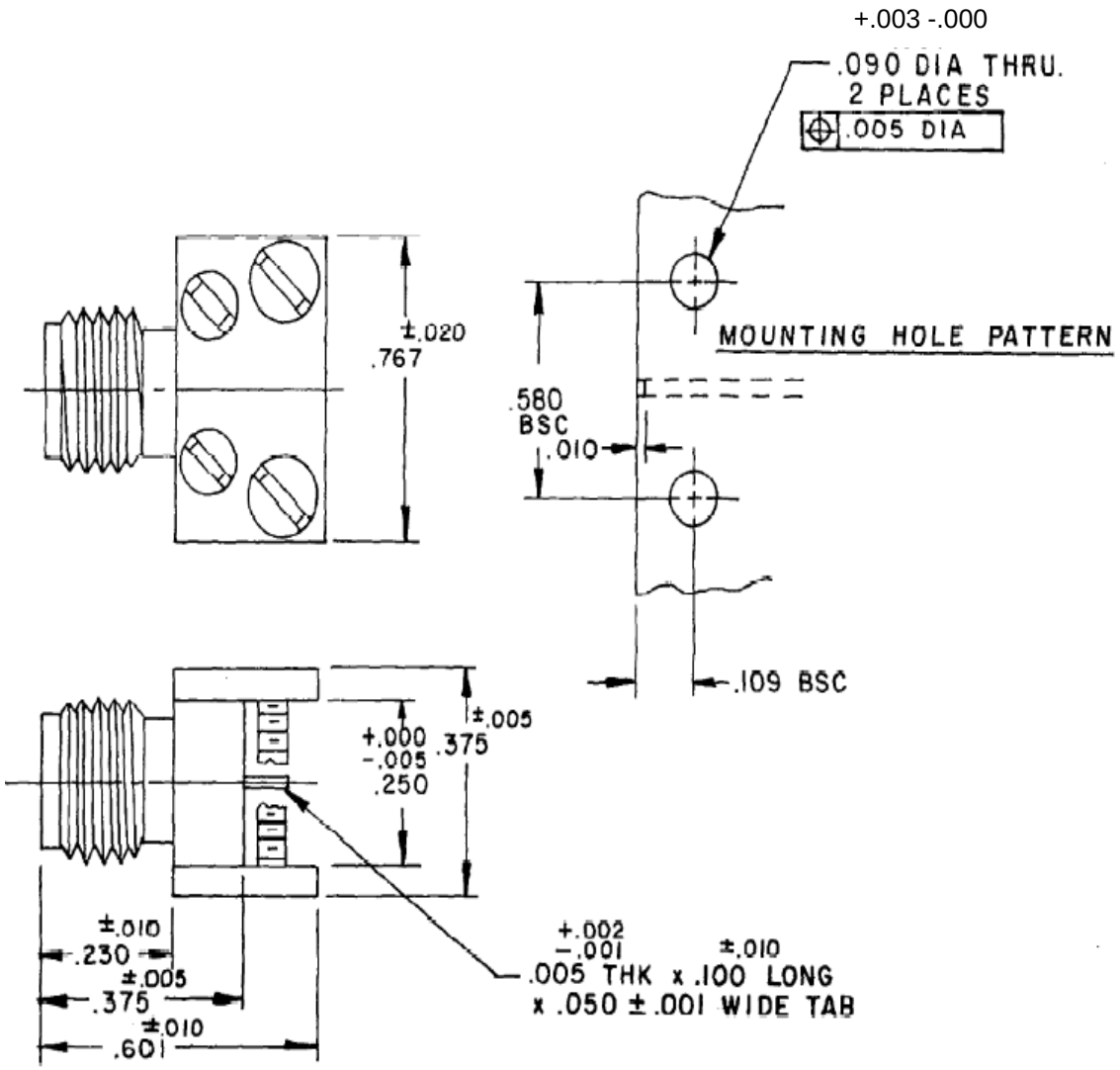
INCH	MM	INCH	MM
.001	.03	.100	2.54
.002	.05	.109	2.77
.003	.08	.120	3.05
.005	.13	.125	3.18
.010	.25	.127	3.23
.020	.51	.230	5.84
.025	.64	.230	6.22
.050	1.27	.245	6.35
.057	1.45	.250	9.53
.062	1.57	.562	14.27
.064	1.63	.580	14.73
.090	2.29	.601	15.27
		.767	19.48

PART NO.	"A"DIM	"B"DIM	FOR TRANSMISSION LINE THICKNESS
-31001	.064/.057	.025±.002	.0625
-31002	.127/.120	.050±.001	.125
-31003	.250/.245	.050±.001	.125 WITH(2).063 SUPPORT PLATES

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.

FIGURE 1. Series SMA, socket contact, end launch, receptacle.

Note 4. Mounting screws shall be steel IAW MIL-DTL-83517A. Number 2 screws are suggested for mounting.



INCH	MM	INCH	MM
.001	.03	.100	2.54
.002	.05	.109	2.77
.003	.08	.120	3.05
.005	.13	.125	3.18
.010	.25	.127	3.23
.020	.51	.230	5.84
.025	.64	.230	6.22
.050	1.27	.245	6.35
.057	1.45	.250	9.53
.062	1.57	.562	14.27
.064	1.63	.580	14.73
.090	2.29	.601	15.27
		.767	19.48

PART NO.	TRANSMISSION LINE THICKNESS
-31004	.250

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.

FIGURE 2. Series SMA socket contact end launch, receptacle (.25 inch).

Note 4. Mounting screws shall be steel IAW MIL-DTL-83517A. Number 2 screws are suggested for mounting.

ENGINEERING PARAMETERS:

Nominal impedance: 50 ohms.

Voltage rating: 600 Vrms maximum at sea level, 335 Vrms for -31001 only.
150 Vrms maximum at 70,000 feet.

Frequency range: 0 to 18.0 GHz.

Temperature rating: -65° to 105°C.

REQUIREMENTS:

Design and construction: See figures 1 through 3, table I and MIL-STD-348.

Force to engage and disengage:

Torque – 2 inch-pounds maximum.

Longitudinal force – Not applicable.

Coupling proof torque: Not applicable.

Inspection note: For each test of threaded coupling connector where the test is performed on mated pairs, the pairs shall be torqued to 7 to 10 inch-pounds.

Contact gaging: See figure 4.

Contacts with spring members:

Center contact (socket)

Oversize test pin - .0375 +.0001

Test pin finish – 16 microinches.

Insertion depth - .030/.045.

Number of insertions – 3.

Insertion force test: Steel test pin diameter .0370 + .0001.

Insertion depth - .050/.075.

Test pin finish – 16 microinches.

Insertion force – 3 pounds maximum.

Withdrawal force test: Steel test pin diameter .0355 - .0001

Insertion depth - .050/.075.

Withdrawal force – 1 ounce minimum.

Test pin finish – 16 microinches.

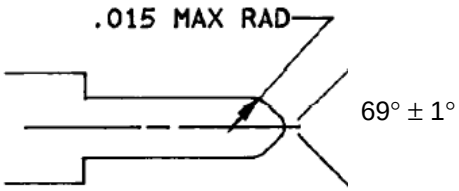


FIGURE 4. Test pin data.

TABLE I. Part number and characteristics.

Part no. M83517/9-	Connector figure no.	Characteristics
31001	1	Strip transmission line end launch, receptacle .025 wide tab, for 1/16” strip transmission line.
31002	1	Strip transmission line end launch, .050 receptacle .050 wide tab, for 1/8” strip transmission line.
31003	1	Strip transmission line end launch, receptacle, .050 wide tab, (2) .063 support plates, for 1/8” strip transmission line.
31004	2	Strip transmission line end launch, receptacle, .050 wide tab, for ¼” strip transmission line.

Permeability of nonmagnetic materials: Applicable.

Seal:

Hermetic sealed connectors: Not applicable.

Pressurized and weatherproof connectors: Not applicable.

Insulation resistance: 5,000 megohms minimum. Test method 021B of EIA 364.

Center contact retention (excluding transition end):

Axial force: 6 pounds minimum.

Torque: 4 inch-ounces minimum.

Dielectric withstanding voltage: Method 020B of EIA 364 Condition I.

Test voltage 1,000 Vrms.

Corrosion: Test method 026A of EIA 364 test condition B.

Voltage standing wave ratio (VSWR):

VSWR test shall be less than 1.10 +.02F (F in GHz). Test frequency 2 - 18 GHz.

RF transmission loss: .07√F (tested from 2-18 GHZ, F in GHz)..

RF leakage: Not applicable.

Connector durability:

Interface:

500 cycles minimum at 12 cycles/minute maximum rate.

Connector shall meet contact gaging and force to engage and disengage requirements.

Contact resistance: In milliohms maximum.

	Initial	After environment
Center contact:	3.0	4.0
Outer contact:	2.0	Not applicable

Thermal shock: Applicable, test condition A.

Moisture resistance: Method 106 of MIL-STD-202.

No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

RF high potential withstanding voltage:

At a frequency between 5 to 7.5 MHz.

Leakage current – Not applicable.

RF voltage – 670 Vrms.

Coupling mechanism retention force: Not applicable.

Part number: M83517/9-(dash number from table I.)

Group qualification: See table II.

TABLE II. Group qualification.

Group	Submission and qualification of any of the following connectors 1/2/	Qualifies the following connectors
1	3+001	3+001 3+002 3+003 3+004

1/ Individual connectors other than listed are self qualifying only.

2/ Qualification of connectors qualifies connectors of the same material only.

+ Denotes finish.

Specifications cited herein:

MIL-STD-202
MIL-STD-348
EIA 364

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA - CC

Preparing activity:
DLA – CC

(Project 5935-4608-009)

Review activities:
Army – AR, AT, CR4, MI
Navy – AS, MC, OS, SH
Air Force – 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.

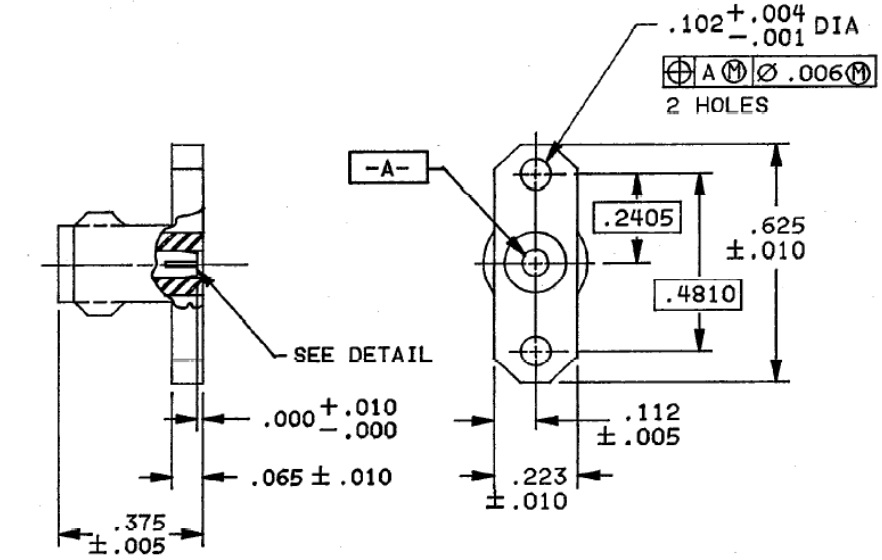
MIL-DTL-83517/10A
DRAFT
SUPERSEDING
MIL-C-83517/10
20 September 1982

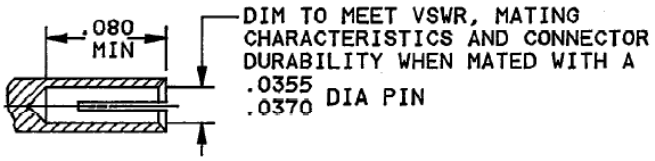
DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLES, ELECTRICAL, COAXIAL, RADIO FREQUENCY, STRIP OR MICROSTRIP TRANSMISSION LINE, SERIES SMA (SOCKET CONTACT, FLANGE MOUNTED RECEPTACLE)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the connectors described herein shall consist of this specification and the latest issue of MIL-DTL-83517A.



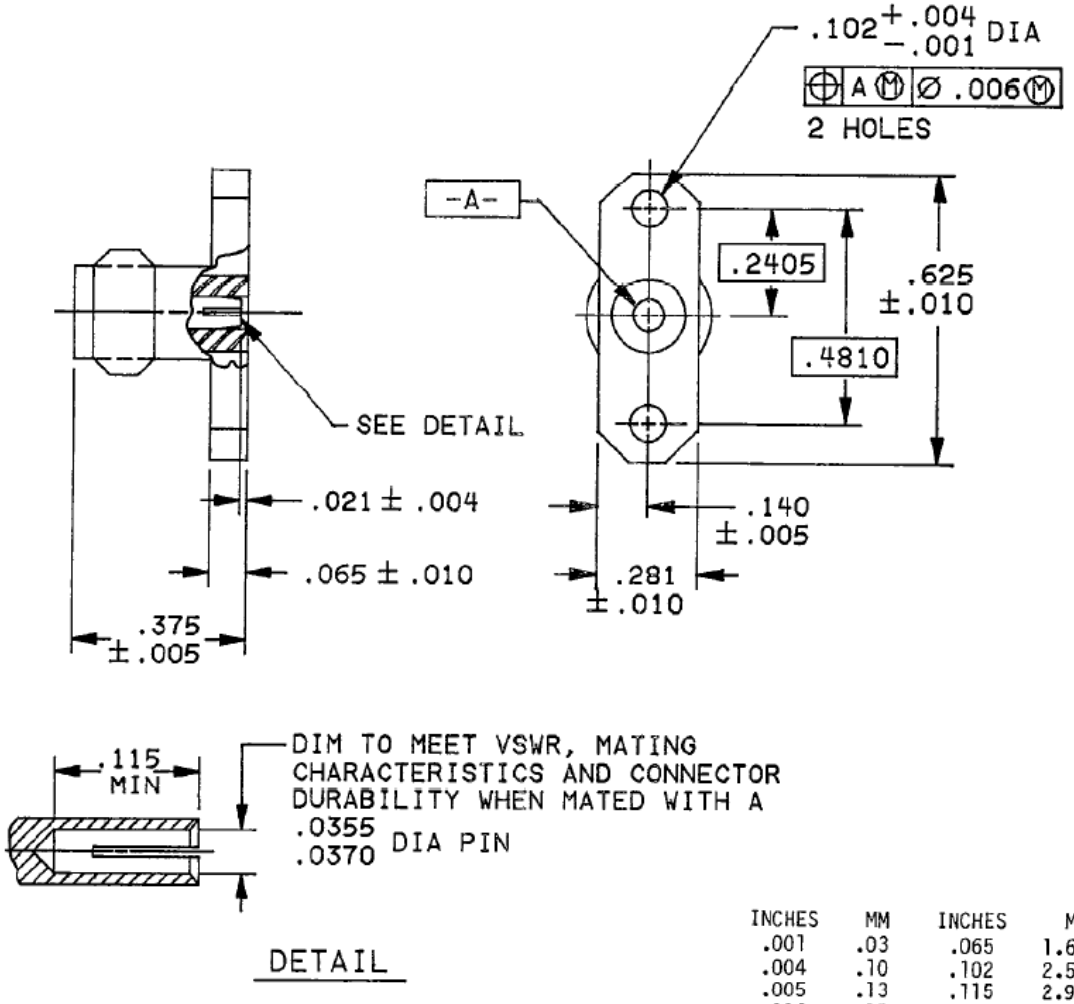


DETAIL

INCHES	MM	INCHES	MM
.001	.03	.0370	.940
.004	.10	.080	2.03
.005	.13	.102	2.59
.006	.15	.112	2.84
.010	.25	.223	5.66
.0355	.902	.2405	6.11
		.375	12.22

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

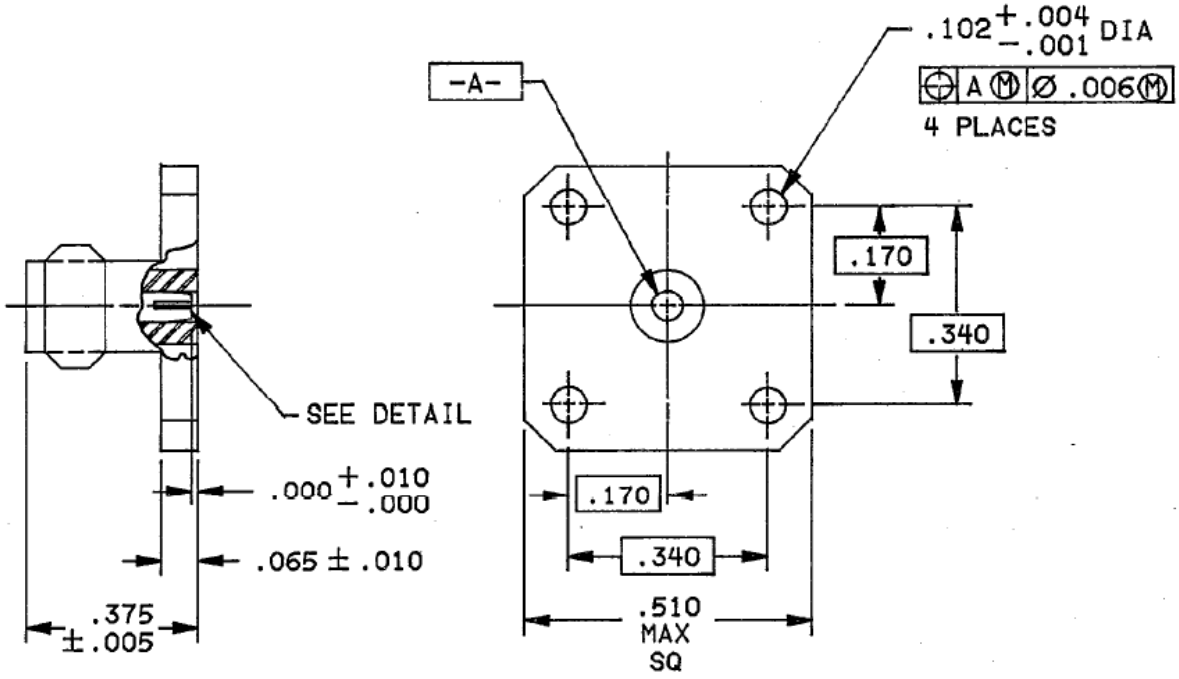
FIGURE 1. Series SMA socket contact, 2 hole (.223 inch wide) flange mounted receptacle.

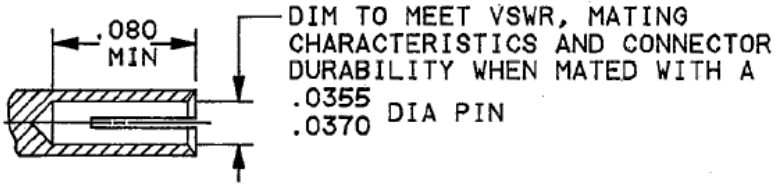


INCHES	MM	INCHES	MM
.001	.03	.065	1.65
.004	.10	.102	2.59
.005	.13	.115	2.92
.006	.15	.140	3.56
.010	.25	.2405	6.11
.0355	.90	.375	9.53
.0370	.94	.4810	12.22
		.625	15.88

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

FIGURE 2. Series SMA, socket contact 2 hole (.281 inch wide) flange mounted receptacle.



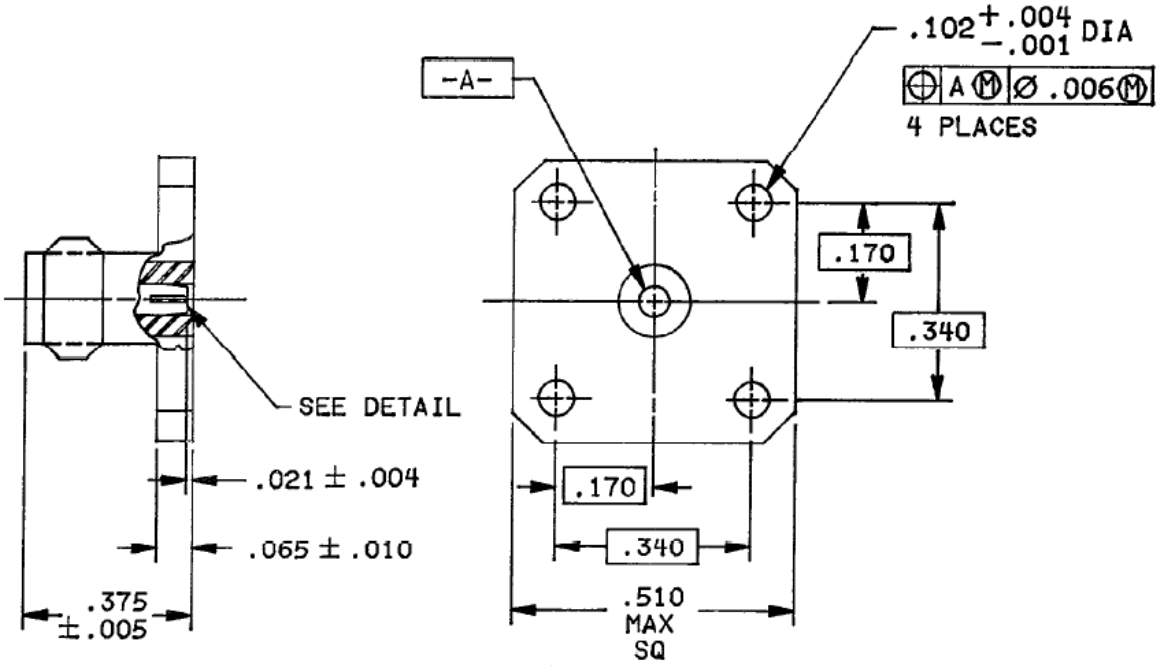


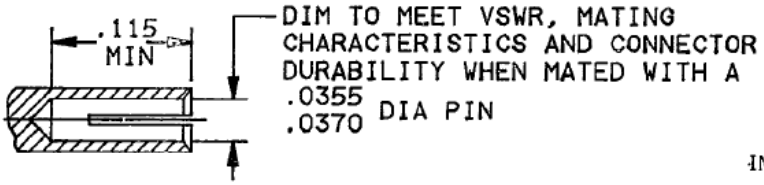
DETAIL

INCHES	MM	INCHES	MM
.001	.03	.065	1.65
.004	.10	.080	2.03
.005	.13	.102	2.59
.006	.15	.170	4.32
.010	.25	.340	8.64
.0355	.90	.375	9.53
.0370	.940	.510	12.95

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

FIGURE 3. Series SMA (.080 inch minimum) socket contact (4 hole) flange mounted receptacle.



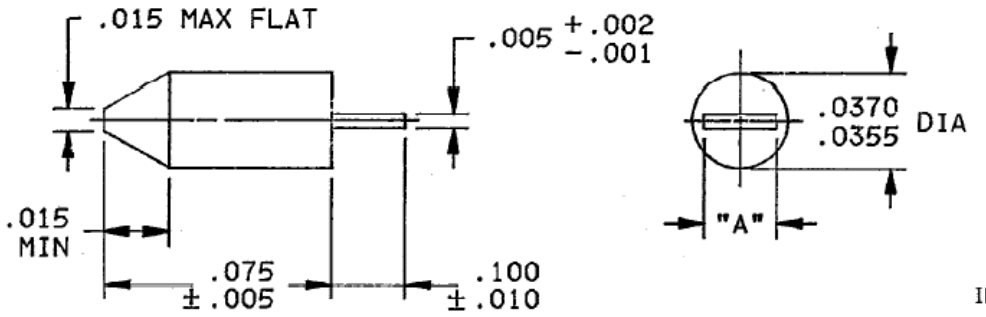


DETAIL

INCHES	MM	INCHES	MM
.001	.03	.0370	.940
.004	.10	.065	1.65
.005	.13	.102	2.59
.006	.15	.115	2.92
.010	.25	.170	4.32
.021	.53	.340	8.64
.0355	.90	.375	9.53
		.510	12.95

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Number two screws are suggested for mounting.

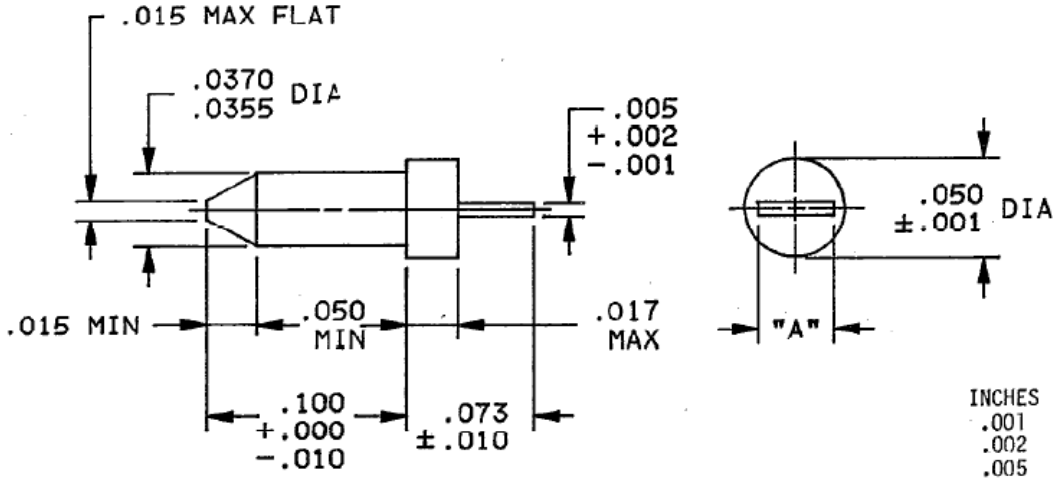
FIGURE 4. Series SMA (.115 inch minimum) socket contact (4 hole) flange mounted receptacle.



* FIGURE	"A" DIM
5 A	.020 ±.002
5 B	.050 ±.002

INCHES	MM
.001	.03
.002	.05
.005	.13
.010	.25
.015	.38
.020	.51
.0355	.90
.0370	.94
.050	1.27
.075	1.10
.100	2.54

FIGURE 5. Transition pin (.075 inch).

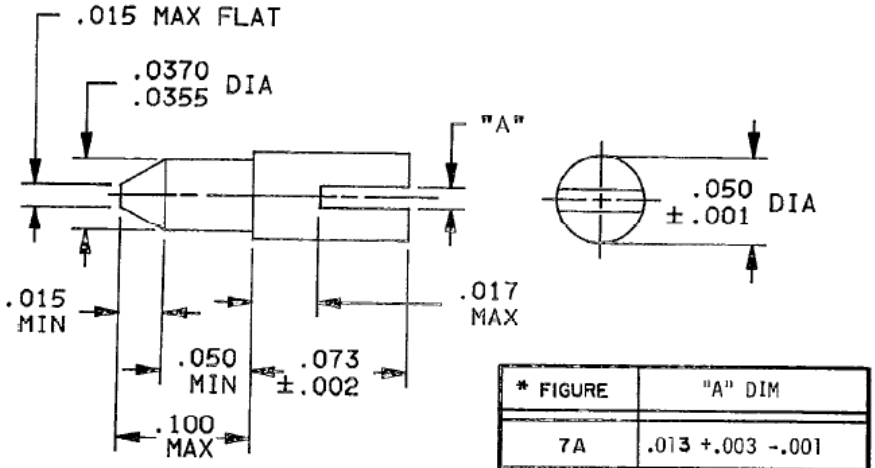


* FIGURE	"A" DIM
6 A	.020 ±.002
6 B	.050 ±.001

INCHES	MM
.001	.03
.002	.05
.005	.13
.010	.25
.015	.38
.017	.43
.020	.51
.0355	.901
.0370	.940
.050	1.27
.073	1.85
.100	2.54

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All unidmensioned pictorial configurations are for reference purposes only.
* 4. See Table 1.

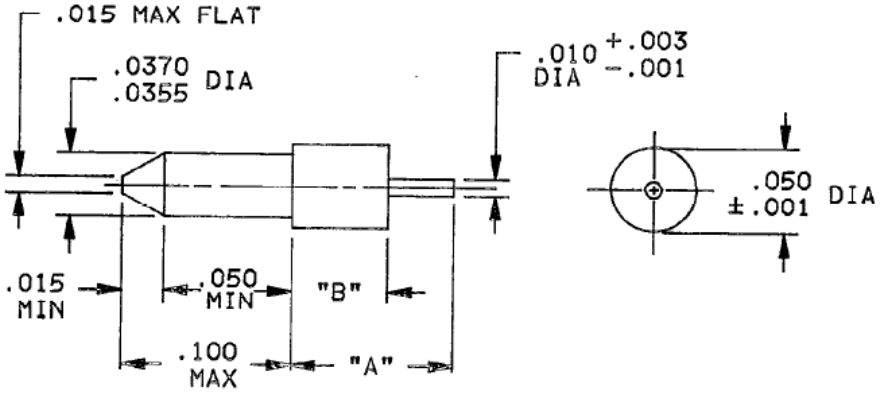
FIGURE 6. Transition pin (.100 inch).



INCHES	MM
.001	.03
.002	.05
.003	.08
.012	.30
.015	.38
.017	.43
.018	.46
.028	.71
.0355	.901
.0377	.940
.050	1.27
.073	1.85
.100	2.54

* FIGURE	"A" DIM
7A	.013 +.003 -.001
7B	.018 +.003 -.001
7C	.028 +.003 -.001

FIGURE 7. Transition pin (slotted).



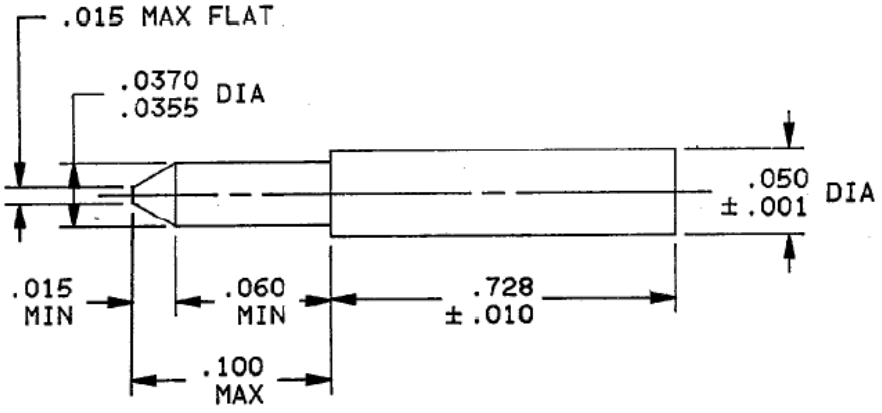
INCHES	MM
.001	.03
.002	.05
.003	.08
.010	.25
.015	.38
.0355	.901
.0370	.940
.050	1.27
.080	2.03
.100	2.54
.136	3.45
.142	3.61
.198	5.03

* FIGURE	"A" DIM	"B" DIM
8A	.136 ±.010	.080 ±.002
8B	.198 ±.010	.142 ±.002
8C	.073 ± .010	.015 ±.002

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
* 4. See Table 1.

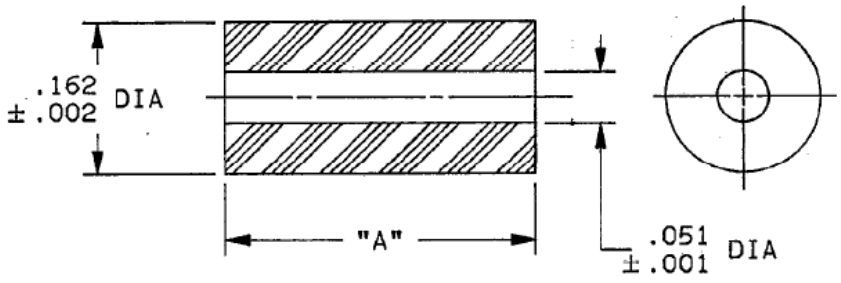
FIGURE 8. Transition pin (.050 inch contact).

INCHES	MM
.001	.03
.002	.05
.005	.13



INCHES	MM
.001	.03
.002	.05
.005	.13
.010	.25
.015	.38
.020	.51
.0355	.90
.0370	.94
.050	1.27
.075	1.90
.100	2.54

FIGURE 9. Transition Pin (.060 inch contact).



* FIGURE	"A" DIM
10 A	.070 ±.002
10 B	.132 ±.002
10 C	.625 ±.002

INCHES	MM	INCHES	MM
.001	.03	.070	1.78
.002	.05	.132	3.35
.051	1.30	.162	4.11
		.625	15.88

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
* 4. See Table 1.

FIGURE 10. Rear dielectric.

ENGINEERING PARAMETERS:

Nominal impedance: 50 ohms.

Voltage rating: 335 Vrms maximum at sea level.
150 Vrms maximum at 70,000 feet.

Frequency range: 0 to 18.0 GHz.

Temperature rating: -65° to 105°C.

REQUIREMENTS:

Design and construction: See figures 1 through 10, table I and MIL-STD-348.

Force to engage and disengage:

Torque – 2 inch-pounds maximum.

Longitudinal force – Not applicable.

Coupling proof torque: Not applicable.

Inspection note: For each test of threaded coupling connector where the test is performed on mated pairs, the pairs shall be torqued to 7 to 10 inch-pounds.

Contact gaging: See figure 12.

Contacts with spring members:

Center contact (socket)

Oversize test pin - .0375 +.0001

Test pin finish – 16 micro inches.

Insertion depth - .030/.045.

Number of insertions – 3.

Insertion force test: Steel test pin diameter .0370 + .0001.

Insertion depth - .050/.075.

Test pin finish – 16 micro inches.

Insertion force – 3 pounds maximum.

Withdrawal force test: Steel test pin diameter .0355 - .0001

Insertion depth - .050/.075.

Withdrawal force – 1 ounce minimum.

Test pin finish – 16 micro inches.

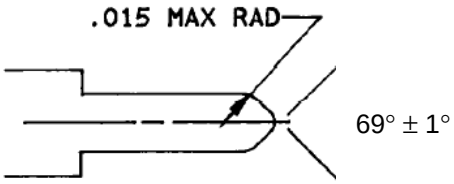


FIGURE 12. Test pin data.

TABLE I. Part number and characteristics.

Part no. M83517/10-	Basic connector figure no.	Transition pin figure no.	Rear dielectric figure no.	Remarks
31001	1	-	-	-
31002	2	-	-	-
31003	3	-	-	-
31004	4	-	-	-
31005	1	5A	-	.020 wide tab
31006	1	5B	-	.050 wide tab
31007	2	6A	-	.020 wide tab
31008	2	6B	-	.050 wide tab
31009	2	7A	-	.012 slot
31010	2	7B	-	.018 slot
31011	2	7C	-	.028 slot
31012	2	8A	10A	.010 dia. terminal for 1/16 panel
31013	2	8B	10B	.010 dia. terminal for 1/8 panel
31014	2	9	10C	.050 dia. terminal
31015	3	5A	-	.020 wide tab
31016	3	5B	-	.050 wide tab
31017	4	6A	0	.020 wide tab
31018	4	6B	0	.050 wide tab
31019	4	7A	-	.012 slot
31020	4	7B	-	.018 slot
31021	4	7C	-	.028 slot
31022	4	8A	10A	.010 dia. terminal for 1/16 panel
31023	4	8B	10B	.010 dia. terminal for 1/8 panel
31024	4	9	10C	.050 dia. terminal

Permeability of nonmagnetic materials: Applicable.

Seal:

Hermetic sealed connectors: Not applicable.

Pressurized and weatherproof connectors: Not applicable.

Insulation resistance: 5,000 megohms minimum. Test method 021B of EIA 364.

Center contact retention:

Axial force: 6 pounds minimum.

Torque: Not applicable.

Dielectric withstanding voltage: Method 020B of EIA 364 Condition I.

Test voltage 1,000 Vrms.

Corrosion: Test method 026A of EIA 364 test condition B.

Voltage standing wave ratio (VSWR):

Test frequency range: From .5 to 18.0 GHz.

1.35 +.01 F (F in GHz), maximum. Test frequency range: From .5 to 18.0 GHz.

RF transmission loss: .07√F (tested from 2-18 GHz, F in GHz).

RF leakage: Not applicable.

Connector durability:

Interface:

500 cycles minimum at 12 cycles/minute maximum rate.

Connector shall meet contact gaging and force to engage and disengage requirements.

Transition pin:

500 cycles minimum at 12 cycles/minute maximum rate.

Contact shall meet contact gaging requirements.

Contact resistance: In milliohms maximum.

	Initial	After environment
Center contact:	6.0	8.0
Outer contact:	2.0	Not applicable

Thermal shock: Applicable, test condition A.

Moisture resistance: Method 106 of MIL-STD-202.

No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

RF high potential withstanding voltage:

At a frequency between 5 to 7.5 MHz.

Leakage current – Not applicable.

RF voltage – 670 Vrms.

Coupling mechanism retention force: Not applicable.

Part number: M83517/10-(dash number from table I.)

Group qualification: See table II.

TABLE II. Group qualification.

Group	Submission and qualification of any of the following connectors 1/2/	Qualifies the following connectors
1	M83517/10-3+005	M83517/10-3+001 3+003 3+005 3+006 3+015 3+016
II	M83517/10-3+007	M83517/10-3+002 3+004 3+007 3+008 3+017 3+018
III	M83517/10-3+009	M83517/10-3+002 3+004 3+009 3+010 3+011 3+019 3+020 3+021
IV	M83517/10-3+009	M83517/10-3+002 3+004 3+012 3+013 3+022 3+023
V	M83517/10-3+014	M83517/10-3+002 3+004 3+014 3+024

1/ Individual connectors other than listed are self qualifying only.

2/ Qualification of connectors qualifies connectors of the same material only.

+ Denotes finish.

Specifications cited herein:

MIL-STD-202
MIL-STD-348
EIA 364

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA - CC

Preparing activity:
DLA – CC

(Project 5935-4608-010)

Review activities:
Army – AR, AT, CR4, MI
Navy – AS, MC, OS, SH
Air Force – 99

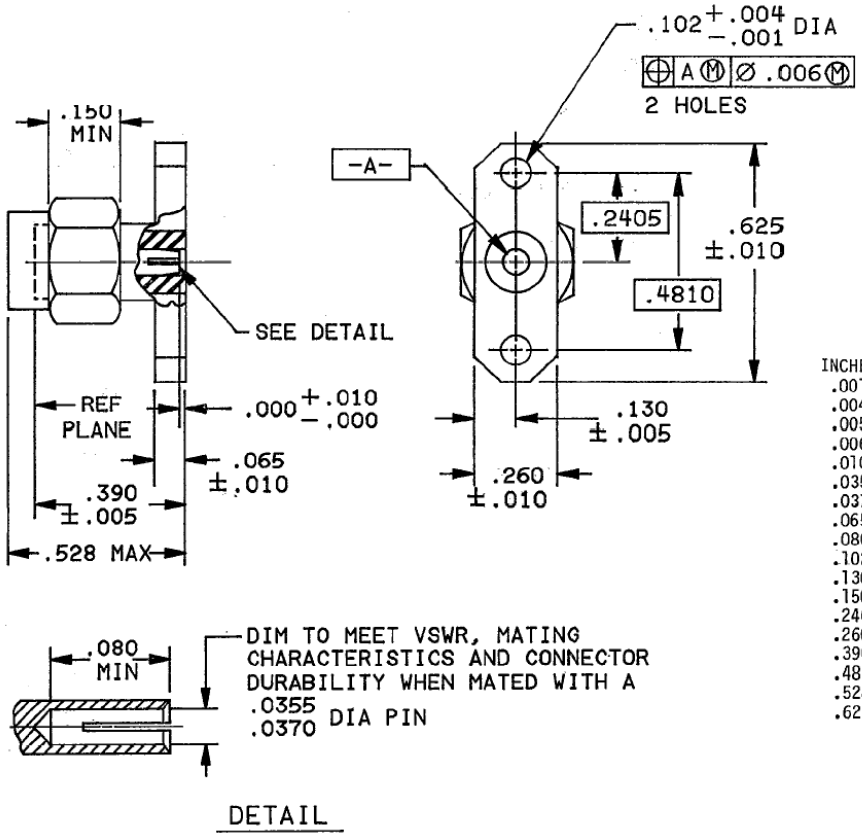
NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.

DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLES, ELECTRICAL, COAXIAL, RADIO FREQUENCY, STRIP OR MICROSTRIP TRANSMISSION LINE, SERIES SMA (PIN CONTACT, FLANGE AND MOUNTED RECEPTACLE)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the connectors described herein shall consist of this specification and the latest issue of MIL-DTL-83517A.

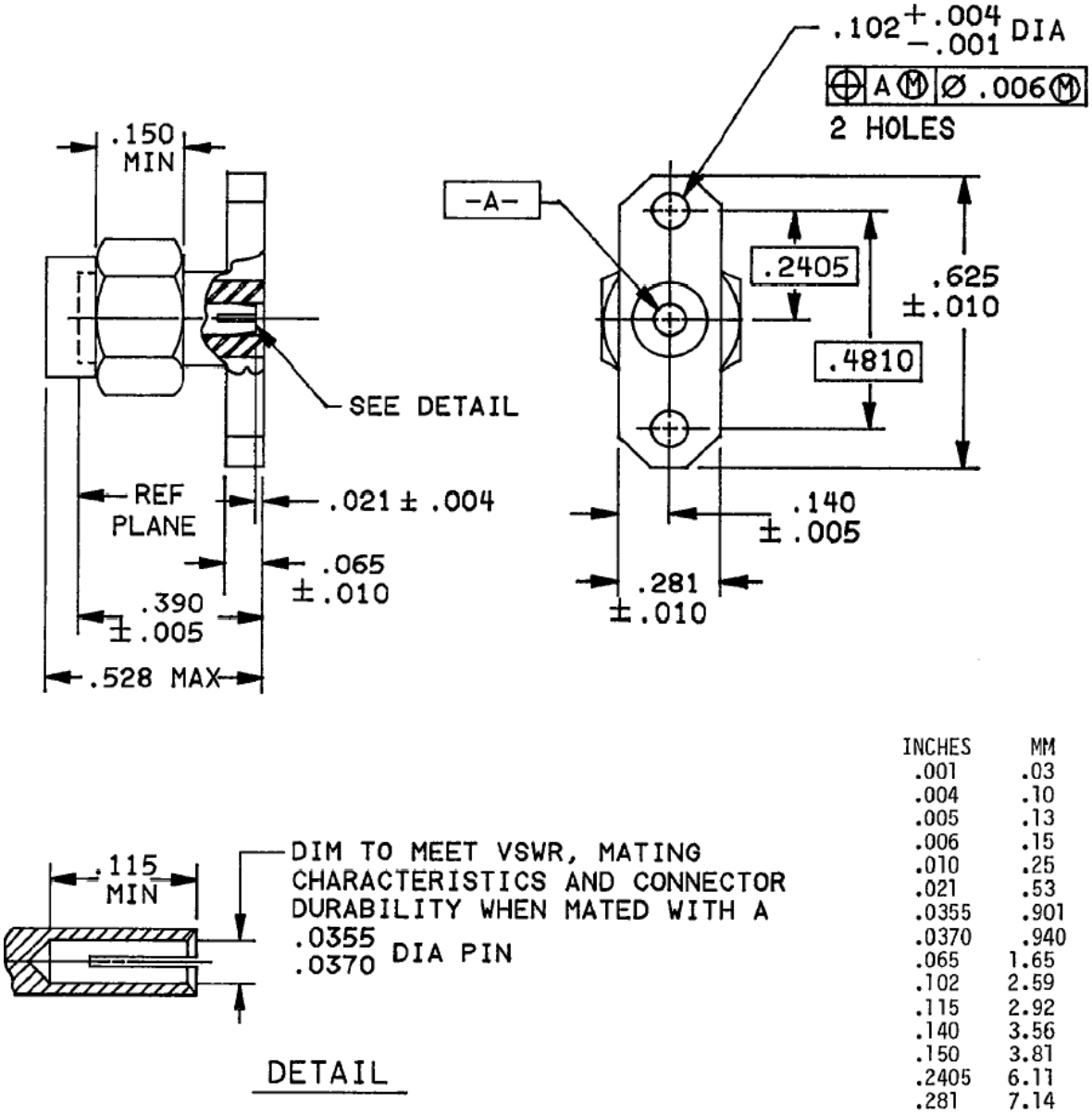


DETAIL

INCHES	MM
.001	.03
.004	.10
.005	.13
.006	.15
.010	.25
.0355	.901
.0370	.940
.065	1.65
.080	2.03
.102	2.59
.130	3.30
.150	3.81
.2405	6.11
.260	6.60
.390	9.91
.4810	12.22
.528	13.41
.625	15.88

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.

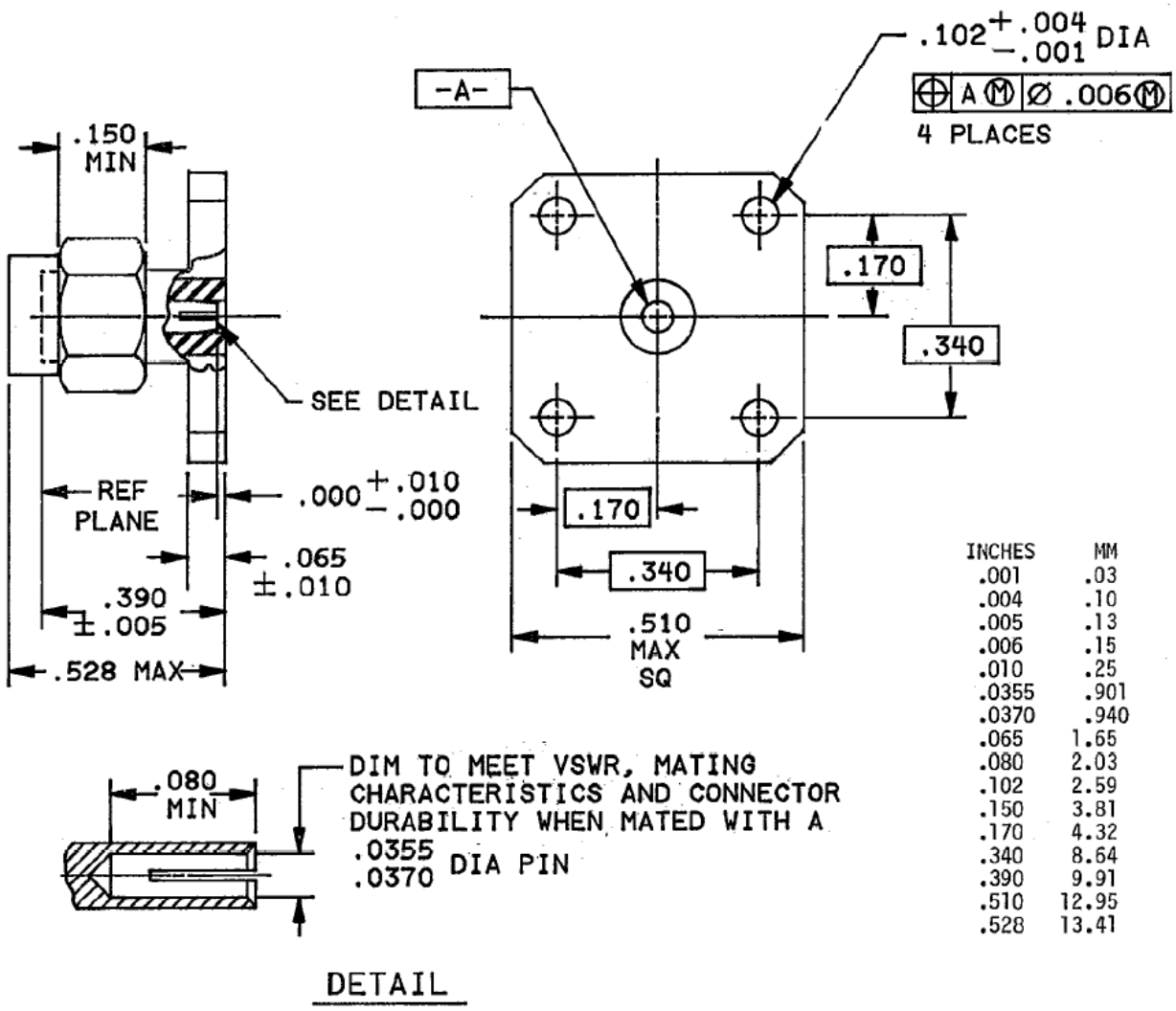
FIGURE 1. Series SMA, pin contact, 2 hole (.260) flange mounted receptacle.



INCHES	MM
.001	.03
.004	.10
.005	.13
.006	.15
.010	.25
.021	.53
.0355	.901
.0370	.940
.065	1.65
.102	2.59
.115	2.92
.140	3.56
.150	3.81
.2405	6.11
.281	7.14
.390	9.91
.4810	12.22
.528	13.41
.625	15.88

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.

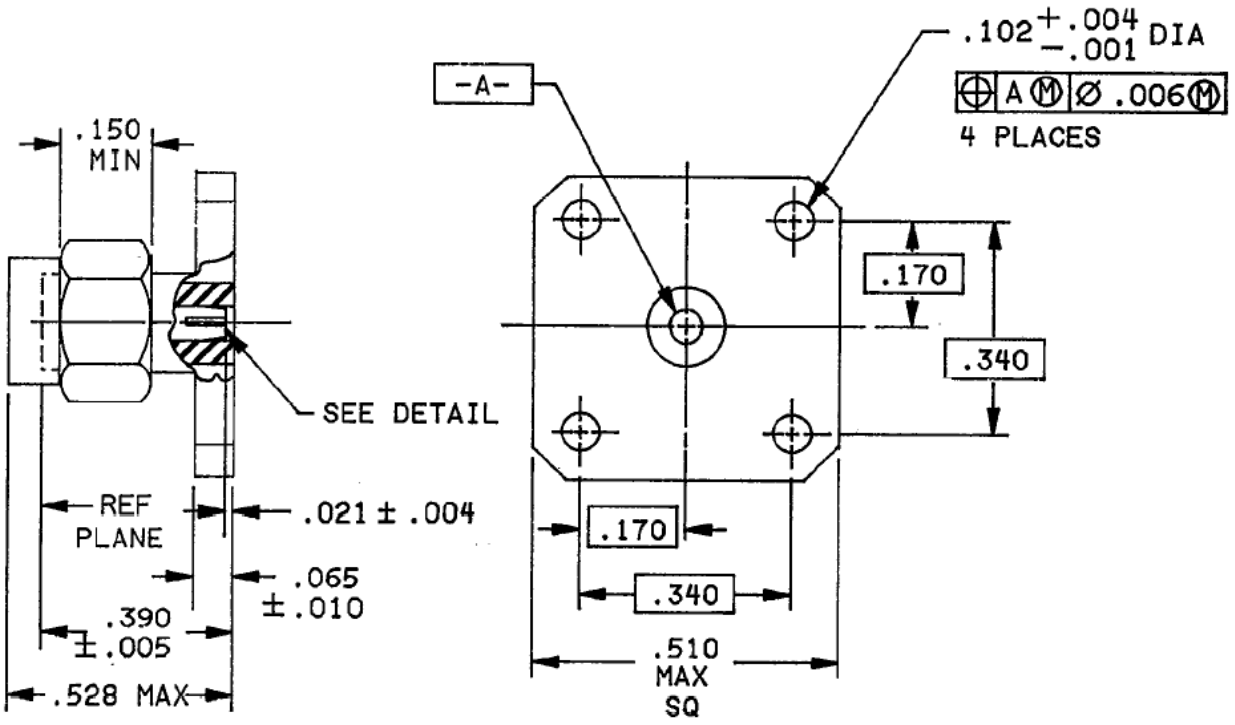
FIGURE 2. Series SMA, pin contact, 2 hole, (.281) flange mounted receptacle.

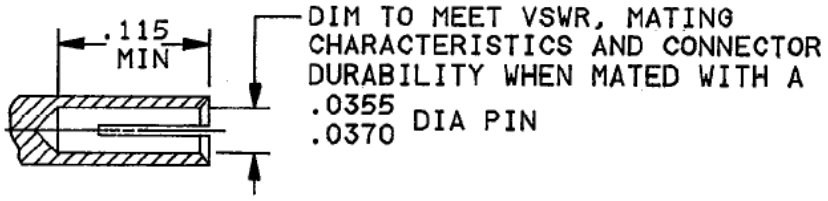


INCHES	MM
.001	.03
.004	.10
.005	.13
.006	.15
.010	.25
.0355	.901
.0370	.940
.065	1.65
.080	2.03
.102	2.59
.150	3.81
.170	4.32
.340	8.64
.390	9.91
.510	12.95
.528	13.41

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.

FIGURE 3. Series SMA (.080 inch) pin contact, (4 hole) flange mounted receptacle.



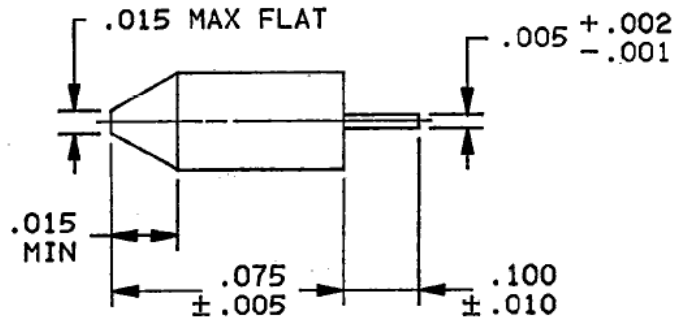


DETAIL

INCHES	MM	INCHES	MM
.001	.03	.065	1.65
.004	.10	.116	2.95
.005	.13	.102	2.59
.006	.15	.150	3.81
.010	.25	.170	4.32
.021	.53	.340	8.64
.0335	.902	.390	9.91
.0370	.940	.510	12.95
		.528	13.41

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.

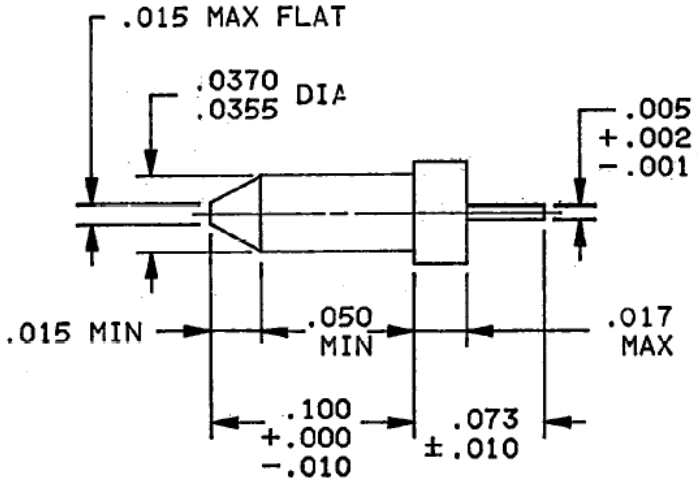
FIGURE 4. Series SMA (.115 inch) pin contact, (4 hole) flange mounted receptacle.



* FIGURE	"A" DIM
5 A	.020 ±.002
5 B	.050 ±.002

INCHES	MM
.001	.03
.002	.05
.005	.13
.010	.25
.015	.38
.020	.51
.0355	.90
.0370	.94
.050	1.27
.075	1.10
.100	2.54

FIGURE 5. Transition pin (.075 inch).

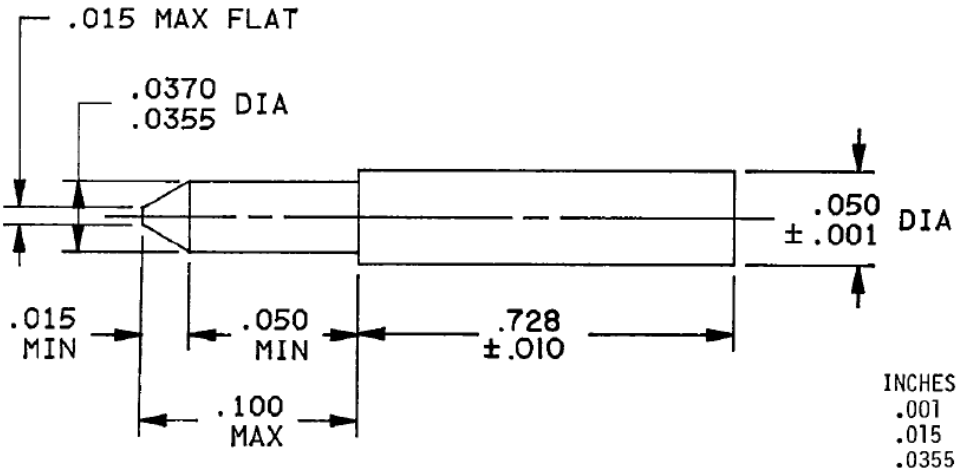


* FIGURE	"A" DIM
6 A	.020 ±.002
6 B	.050 ±.002

INCHES	M
.001	.0
.002	.0
.005	.1
.010	.2
.015	.3
.017	.4
.020	.5
.0355	.9
.0370	.9
.050	1.2
.073	1.8
.100	2.5

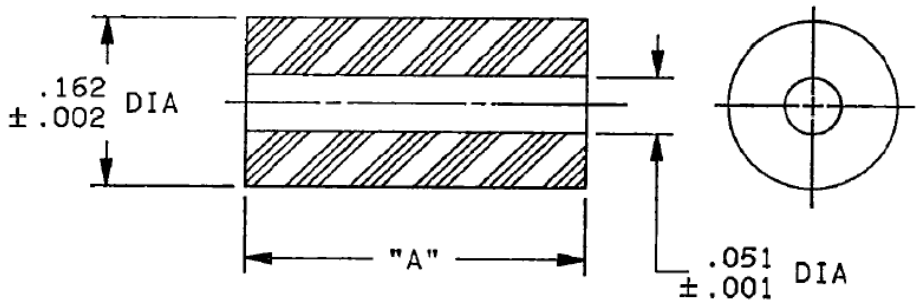
NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.
4. See Table 1.

FIGURE 6. Transition pin (.100 inch).



INCHES	MM
.001	.03
.015	.38
.0355	.901
.0370	.940
.050	1.27
.100	2.54
.517	13.13

FIGURE 7. Transition pin.



* FIGURE	"A" DIM
8 A	.070 ±.002
8 B	.132 ±.002
8 C	.625 ±.002

INCHES	MM
.001	.03
.002	.25
.051	1.30
.070	1.78
.132	3.35
.162	4.11
.625	15.88

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are reference purposes only.
* 4. See Table 1.

FIGURE 8. Rear dielectric.

ENGINEERING PARAMETERS:

Nominal impedance: 50 ohms.

Voltage rating: 335 Vrms maximum at sea level.
150 Vrms maximum at 70,000 feet.

Frequency range: 0 to 18.0 GHz.

Temperature rating: -65° to 105°C.

REQUIREMENTS:

Design and construction: See figures 1 through 8, table I and MIL-STD-348.

Force to engage and disengage:

Torque – 2 inch-pounds maximum.

Longitudinal force – Not applicable.

Coupling proof torque: 15 inch-pounds minimum.

Inspection note: For each test of threaded coupling connector where the test is performed on mated pairs, the pairs shall be torqued to 7 to 10 inch-pounds.

Contact gaging: See figure 10.

Contacts with spring members:

Center contact (socket)

Oversize test pin - .0375 +.0001

Test pin finish – 16 microinches.

Insertion depth - .030/.045.

Number of insertions – 3.

Insertion force test: Steel test pin diameter .0370 + .0001.

Insertion depth - .050/.075.

Test pin finish – 16 microinches.

Insertion force – 3 pounds maximum.

Withdrawal force test: Steel test pin diameter .0355 - .0001

Insertion depth - .050/.075.

Withdrawal force – 1 ounce minimum.

Test pin finish – 16 microinches.

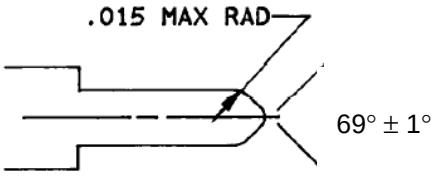


FIGURE 10. Test pin data.

TABLE I. Part number and characteristics.

Part no. M83517/11-	Basic connector figure no.	Transition pin figure no.	Rear dielectric figure no.	Remarks
31001	1	-	-	-
31002	2	-	-	-
31003	3	-	-	-
31004	4	-	-	-
31005	1	5A	-	.020 wide tab
31006	1	5B	-	.050 wide tab
31007	2	6A	-	.020 wide tab
31008	2	6B	-	.050 wide tab
31009	2	7	8C	.050 dia. terminal
31010	3	5A	-	.020 wide tab
31011	3	5B	-	.050 wide tab
31012	4	6A	-	.020 wide tab
31013	4	6B	-	.050 wide tab
31014	4	7	8C	.050 dia. terminal

Permeability of nonmagnetic materials: Applicable.

Seal:

Hermetic sealed connectors: Not applicable.

Pressurized and weatherproof connectors: Not applicable.

Insulation resistance: 5,000 megohms minimum. Test method 021B of EIA 364.

Center contact retention:

Axial force: 6 pounds minimum.

Torque: Not applicable.

Dielectric withstanding voltage: Method 020B of EIA 364 Condition I.

Test voltage 1,000 Vrms.

Corrosion: Test method 026A of EIA 364 test condition B.

Voltage standing wave ratio (VSWR):

1.35 +.01 F (F in GHz), maximum. Test frequency range: From .5 to 18.0 GHz.

RF transmission loss: .07√F (tested from 2-18 GHz, F in GHz).

RF leakage: Not applicable.

Connector durability:

Interface:

500 cycles minimum at 12 cycles/minute maximum rate.

Connector shall meet contact gaging and force to engage and disengage requirements.

Transition pin:

500 cycles minimum at 12 cycles/minute maximum rate.

Contact shall meet contact gaging requirements.

Contact resistance: In milliohms maximum.

	Initial	After environment
Center contact:	6.0	8.0
Outer contact:	2.0	Not applicable

Thermal shock: Applicable, test condition A.

Moisture resistance: Method 106 of MIL-STD-202.

No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

RF high potential withstanding voltage:

At a frequency between 5 to 7.5 MHz.

Leakage current – Not applicable.

RF voltage – 670 Vrms.

Coupling mechanism retention force: 60 pounds minimum.

Part number: M83517/11-(dash number from table I.)

Group qualification: See table II.

TABLE II. Group qualification.

Group	Submission and qualification of any of the following connectors 1/2/	Qualifies the following connectors
1	M83517/11-3+005	M83517/11-3+001 3+003 3+005 3+006 3+010 3+011
II	M83517/11-3+007	M83517/11-3+002 3+004 3+007 3+008 3+012 3+013
III	M83517/11-3+009	M83517/11-3+002 3+004 3+009 3+014

1/ Individual connectors other than listed are self qualifying only.

2/ Qualification of connectors qualifies connectors of the same material only.

+ Denotes finish.

Specifications cited herein:

MIL-STD-202
MIL-STD-348
EIA 364

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 11
DLA - CC

Preparing activity:
DLA – CC

(Project 5935-4608-011)

Review activities:
Army – AR, AT, CR4, MI
Navy – AS, MC, OS, SH
Air Force – 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.